10 Reasons to Study at IHE Delft

1. 60 years of experience in graduate water education
2. Close ties to the UN system
3. Fully accredited programmes
4. Gateway to Dutch water know-how
5. Learner-centred, active learning
6. Personal guidance and mentoring
7. Internationally renowned lecturers and professors
8. A truly international environment
9. Live and study in a vibrant city in the heart of Europe
10. Increase career prospects and become part of the largest global water alumni network
WELCOME TO IHE DELFT

We invite you to come and join us in the urgent quest to meet the 2030 United Nations’ Sustainable Development Goals. The education of water professionals throughout the world, to work on solutions to global water problems, is the most sustainable and likely to be one of the most effective approaches to these challenges.

On World Water Day 2018, the UN launched the International Decade for Action: Water for Sustainable Development 2018-2028 aiming to further improve cooperation, partnership and capacity development in response to the ambitious 2030 Agenda. As a member of both the UN and UNESCO Water Family, the role of IHE Delft in helping to achieve this agenda is very important. Education is fundamental to making this agenda a reality and on completing a course at IHE Delft, students are better equipped to tackle or advise on solving water related challenges in their own country.

When we meet our alumni following their studies at IHE Delft, they often use the word ‘transformation’ when describing the impact of their education at IHE Delft. They mean much more than improving their career prospects or chance of promotion. The international environment that the Institute provides, learning from peer students, the practical knowledge of academic staff who regularly work in the field and the vibrant nature of IHE Delft, all make it an unforgettable, positive experience.

In addition to its wide range of programmes and specialisations, IHE Delft provides its education in many formats to cater to the diverse needs of our students: full-time, Delft based Master's courses; joint or double degrees, spending time in different countries; short courses for those with limited time and specialised needs; online to fit in with work and life commitments. Tailor made training courses are designed for the specific requirements of a group and run in Delft or in the participants' country, to suit their requirements.

IHE Delft helps enhance the careers of those who are already working in the field of water, or interested to study the topic, by giving them the chance to broaden or deepen their expertise. As, increasingly, a wide range of skills and backgrounds is beneficial for the water sector, the Institute also welcomes students who wish to change their career path, provided they meet the eligibility requirements.

Since its establishment in 1957, the Institute has educated over 15,000 scientists, engineers and decision-makers from more than 165 countries. Many alumni reach senior positions in their home countries and become nationally and internationally recognised experts in their fields of specialization.

If contributing to solutions to global water challenges excites you, come and join our dynamic, international community at IHE Delft and together we can work towards a better, safer and more sustainable 2030.

Professor Eddy Moors, Rector

www.un-ihe.org
IHE Delft is located in the historical centre of Delft, a city of great charm characterized by ancient canals, beautifully kept monuments and historic squares. It is also a young, vibrant city with a large student population and an ideal starting point to explore the Netherlands and Europe.
A HOME IN THE HEART OF EUROPE

Delft is known for its historic town centre with canals, Delft Blue pottery, painter Johannes Vermeer and scientist Antony van Leeuwenhoek and its association with the royal House of Orange-Nassau.

Since Delft is a university city, there are plenty of cultural events to be enjoyed throughout the year, as well as museums and theatres. There is also an abundance of cafés and restaurants, catering to every taste and making time spent away from your studies an experience in itself.

Water has always played an important role in both the Netherlands’ and Delft’s history. Therefore, it is no surprise that many science and technology organizations related to water have chosen Delft as their home base. IHE Delft maintains close working relationships with various Delft-based research and education institutes, such as the Delft University of Technology, Deltares and the Delfland Water Board.

Delft is well connected to the Dutch public transport system, making The Hague, Rotterdam, Schiphol International Airport and Amsterdam easily accessible. It is a great location to start exploring other places of interest, both within the Netherlands and Europe.

THE INSTITUTE’S FACILITIES AND SERVICES

- Modern teaching and research laboratories in the field/treatment of: wastewater; faecal sludge; drinking water; process technology; aquatic ecology; analytical laboratories, including molecular- and microbiology, equipped with state of the art instrumentation;
- A library with online connections to national and international resource centres, and a reading room containing many international journals and magazines;
- Modernised classrooms and multifunctional lecture theatres;
- A fully equipped auditorium seating 300 and a videoconferencing studio;
- Notebooks for all participants and extensive computing facilities;
- Flexible and group work-spaces;
- A restaurant offering a wide variety of meals and snacks;
- Social and cultural activities, sports facilities and events;
- International student health and counselling services;
- An in-house prayer and meditation room.

YOUR INTERNATIONAL EXPERIENCE

Staff at the Institute simplify your transition to the Netherlands by organizing the annual ‘Introduction Days’. In these two weeks, they help you deal with various formalities such as residence permits, health insurance and bank accounts. Other activities during this period are an excellent way for new students to meet one another and receive the friendship and advice of senior students and the Institute’s staff.

Throughout your study period, IHE Delft organizes many social, cultural and sports events, allowing you to get the most out of your free time. Every year, trips are organized that stimulate you to discover Dutch culture, Delft, the Netherlands and Europe.

HOUSING

Delft is a university city, and therefore accommodation is scarce and expensive. This is why IHE Delft provides fully furnished accommodation in Delft for all students of the Institute’s programmes, available upon arrival and for the duration of the study period.

Water has always played an important role in both the Netherlands’ and Delft’s history.
Studying at IHE Delft is a life-changing experience. You will be exposed to an intercultural environment characterized by plurality and diversity of ideas, experiences and disciplines resulting in intellectual, professional and personal growth.

A Network for Life
Today, several ministers, heads of water-related institutions and top scientists around the globe are IHE Delft graduates.

**MAKE IHE DELFT YOUR NETWORK**

IHE Delft acts as a hub for partnerships and networks across the globe, linking global knowledge to local sector agendas. The Institute collaborates with an extensive range of public and private partners, comprising a wide range of fields and technical cooperation in human and institutional capacity building. These partners are at the international, United Nations, EU and national level. They include education and research institutes, knowledge centres, the (Dutch) Water Sector, funding agencies, NGOs and governmental organizations. These partnerships add value to many of the Institute’s activities.

The Institute maintains close working relationships with many regional and local networks, which facilitates the transfer of scientific and technical expertise, strengthening the capacity of water professionals and institutions. Many of these networks are thriving professional communities, encouraging joint research, knowledge sharing and the development of sustainable water solutions.

As a student, you profit from the professional contacts the Institute has made since its inception. When studying at IHE Delft, you can expect to meet leading figures from the international water arena. Your professors and lecturers will put your study in the context of global dialogues and targets such as the Sustainable Development Goals.

**ALUMNI NETWORK**

Today, a number of ministers and government officials, heads of water-related institutions, and top scientists around the globe are IHE Delft graduates.

After graduation, you will be part of the largest partnership network of water professionals in the world. IHE Delft will continue to facilitate the communication between you, your former classmates, and the Institute. You will receive news about the Institute and the water sector on a regular basis through e-zines. You are invited to join an Alumni Association in your country, independent associations where you can meet fellow alumni and enjoy social and professional activities.

With a IHE Delft degree you will have taken a major step in your professional career. Many alumni reach prominent positions in which strategic, managerial, policy and decision-making components become major responsibilities of their functions. You will, over time, wish to keep your skills and knowledge refreshed, to stay up to date with changing professional demands. To cater to this need, the Institute’s refresher seminars are held annually in different continents, covering themes of direct relevance to these regions. Also, alumni are entitled to discounts on the tuition fee for attending IHE Delft short and online courses, and purchasing publications.

Alumni per country

[Map showing distribution of alumni by country]

www.un-ihe.org/welcome
IHE Delft offers five Master of Science programmes, with a total of 16 specializations. The MSc Programmes educate students primarily from developing countries and countries in transition, as well as students from developed countries with a strong interest in water and development, to become creative problem solving professionals in the field of water and environment.
MSc PROGRAMMES

The MSc curricula are geared towards supporting a greater understanding of sustainable development and the inherent challenges in achieving that. In the programmes, a mix of modern knowledge transfer methods includes lectures, workshops, role-play, games, study tours, and field visits. Teaching staff and students come from all over the world and partnerships with related institutes and universities play an important role in teaching. The educational environment can therefore be called truly international; it is characterized by pluralism and diversity and stimulates students, while progressing in their studies, to develop communication skills that will enable them to disseminate their professional knowledge and skills effectively.

The Delft-based MSc specializations start in October and take 18 months, the first year of which consists of taught modules that are given at IHE Delft. After successful completion of the taught modules, you will do individual research for a six-month period. The research deals with a practical or theoretical problem and may be carried out in collaboration with an organization outside the Netherlands, for example in the home country. Often, field data collection, laboratory or computer analysis work are part of the research. Research is always completed with a thesis and a public presentation of results.

The so-called joint programmes are MSc specialisations developed with and offered in collaboration with partner institutes. These joint programmes have varying start and end dates, and part of the programme is given at a partner institute in another country.

ACCREDITATION

The Institute's MSc programmes are accredited under legislation of The Netherlands. As such, the IHE Delft Foundation is the party legally responsible for the Institute's education and authorized to issue its degrees.

T-SHAPE COMPETENCY PROFILE

Effective problem solving in the field of water and environment requires knowledge-based competence from the physical sciences, water engineering, and/or the social sciences. The MSc curricula provide you with the so-called T-shape competency profile which enables you to cooperate within teams uniting various disciplines. The vertical bar of the T stands for a specialist deep knowledge-based competence. The horizontal bar represents preliminary or working knowledge and skills from neighbouring disciplines, and also general academic skills, communication competencies and other professional skills. Thus, team members who each bring their respective specialist knowledge are able to 'embrace', i.e. sufficiently understand, each other in interdisciplinary problem solving.
The PhD Programme leads to a deepening in a field of specialization. PhD fellows undertake scientific research, often with conclusions that directly influence their own country or region. At IHE Delft, more than 150 PhD researchers from around the world are brought together to participate in problem-focused, solution-orientated research into development issues, resulting in an inspiring research environment.
IHE Delft is a partner member of SENSE (Research School for Socio-Economic and Natural Sciences of the Environment), a national research school in the Netherlands, which connects more than 10 universities and research institutes. The aim of SENSE is to educate and train PhD fellows in disciplinary and multidisciplinary environmental issues, to promote scientific research on environmental change, and to support society and policy makers with independent and scientifically based expert advice. Through IHE SENSE also connects with other Graduate Schools including that of TU Delft and the Research School for International Development (CERES) that has a more social science focus.

PhD PROGRAMME

Conducting research at IHE Delft is a unique experience, as you will work together with other researchers in a multinational and multidisciplinary environment. Your research will provide a firm academic foundation for you to play your part in providing solutions to the global challenges of sustainable water supply, quality and governance.

The PhD research of IHE Delft crosses the spectrum from engineering, information systems, habitat quality and the social and political realities that affect the use and abuse of water. All PhD fellows work within specific Chair Groups, but are encouraged to collaborate internally and externally to produce high quality results within IHE Delft’s research themes. Work often occurs within larger groupings and can include linking to the research topics that are a requirement of the institute’s MSc programme and/or embedded in larger multidisciplinary projects.

You will often do research in collaboration with the Institute’s extensive network of research institutions, governmental and private sector partners throughout the world. Research often includes time in Delft and abroad, mostly in the home country of the research fellows. This directly supports the capacity development mission of the institute and the agenda of the UN Sustainable Development Goals.

All PhD fellows are registered both with the IHE Delft Graduate School and with a partner university. This is normally a Dutch university with the legal authority to award the degree of PhD, although we also have some joint PhD programmes as part of funded networks of research. The time span of a PhD programme is usually planned for four years. The degrees are fully recognised in all parts of the world.

IHE Delft international Graduate School in Water and Development

Sustainable water use is frequently characterised by complex, so-called ‘wicked’, problems where traditional assumptions of knowledge, causality and predictability may not apply. The fundamental importance of better connection between science, policy and society makes new demands on PhD graduates, who are increasingly expected to possess, not only a deep knowledge of their own discipline, but are additionally capable of placing that knowledge in a wider understanding of societal needs.

IHE Delft is well placed to play a significant role in supporting PhD level education that is targeted to water related problems, not only in the global south and countries in transition, but in an increasingly globalised world.

In 2015 IHE Delft established the Graduate School in Water and Development, to create a hub for a vibrant and an intellectually exciting research and development environment at the heart of the Institute. The vision of the Graduate School is to develop a stimulating research environment for PhD fellows and the staff of the Institute. PhD Fellows produce the majority of the research output of the Institute, and future developments are to further support academic quality and relevance in meeting the serious challenges of sustainable water use in increasingly difficult situations. Research activities are supported by an individual training plan that build competencies directly related to the specific research programme, as well as wider interactive and awareness skills that are needed in a professional environment. Each PhD fellow develops his/her Training and Supervision Plan (TSP) that builds verified doctoral education credits.
Online and Short Courses

IHE Delft aims to make water education accessible to an increasing number of students and professionals. The Institute achieves this by providing online and on-campus short courses, tailor-made training, a diploma programme and open courseware on a wide array of topics.

ECTS

It is possible to earn European Credit Transfer System (ECTS) points for several online and short courses. For the latest information on earning ECTS points, including regulations and costs, please refer to our website.

DISCOUNTS

The following discounts on the tuition fee of online and short courses are offered:
• 30%: IHE Delft alumni
• 10%: UN family staff members
• 10%: groups of 5 or more
(provided that the courses start at the same time and a group application has been sent)
ONLINE COURSES
IHE Delft offers high quality online courses in many of the topics of significance in the water sector. The online courses are beneficial to professionals working in public and private institutions, NGOs, and academic institutions, and are ideal for professionals with jobs and families, who want to upgrade their skills from the comfort of their home or office. Each online course’s total study load is 140 hours. A four month course thus takes around 8 hours of work per week. The guidance by lecturing staff during these online courses is intensive, and there are many opportunities to get feedback from and interact with fellow participants.

The web-based Moodle eCampus is used to disseminate training material and for communication. It contains learning tools such as presentations, videos featuring case studies from various countries, interviews with experts, quizzes and audio material, as well as a discussion area, where fellow participants and lecturers can meet each other. All courses run completely via eCampus, but course materials can be sent on CD as well.

For a list of online courses in 2019, see page 22.

ON-CAMPUS SHORT COURSES
IHE Delft conducts a wide range of short, intensive and highly specialized courses which are aimed at upgrading and refreshing the knowledge and skills of mid-career and senior experts. They are meant for professionals - or groups of professionals - with a specific area of interest and a limited amount of time.

Short courses usually are one to three weeks in length. The focus and content vary from specialized and technical matters to challenges and approaches in management. Didactical methods used in these short courses include lectures, individual or group exercises in the classroom, at the computer, or in the laboratory. Fieldwork, excursions and field visits to relevant institutions are often part of a short course, allowing the participants to experience practical examples of the theory offered. Through case studies, role-play and workshops, content is made more interactive, and know-how of participants is shared.

For a list short courses in 2019, see pages 24-25.

TAILOR-MADE TRAINING
Tailor-made courses are designed for clients whose staff require training in specific topics or seek to develop a common knowledge base to address future challenges. The focus of the courses can be technical, managerial, strategic or operational, depending on the client’s priorities.

The training can be organized for groups of various sizes, from one or multiple organizations, sectors or regions. The trainings can vary in length and depth, ranging from a course lasting several days, to a tailored MSc programme in which regular components are mixed with case studies and modules requested by the client. Training can be delivered on-site or using IHE Delft in Delft as a base, or a combination of the two. A mixture of training techniques are utilised in creating tailor-made trainings, including lectures, workshops, role-plays, case studies and study tours to project sites throughout Europe or the region where the training takes place.

For advice on how IHE Delft could be of service to your organization, contact IHE Delft’s Liaison Office. Their contact information is available from the website, see bottom of page.

PROFESSIONAL DIPLOMA PROGRAMME
The Graduate Professional Diploma Programme (GPDP) disseminates relevant knowledge and know-how to professionals who do not have the means or time to pursue a full-time Master’s course in that subject, or who already have an MSc Degree in a related field and wish to specialize.

In the programme you will follow a sequence of four to five online courses, on-campus short courses or a combination of both. To ensure that the programme fits your personal circumstances, you select the courses of interest and a personal study plan will be designed in collaboration with a study advisor. The total duration of the programme depends on this study plan and varies between 1.5 to a maximum of 4.5 years.

For extra information on these tracks and courses, see page 23.

OPEN COURSEWARE
IHE Delft freely provides online educational materials, including recorded lectures and downloadable materials such as course notes, exercises, tools and public domain software on a wide variety of topics.

For a list of open courseware courses, see page 22.

SUMMER COURSES
Summer courses are meant to bring together students and professionals with different academic or professional backgrounds and explore a cross-cutting issue. Course topics include: water diplomacy, communication, leadership, entrepreneurship and gender. The courses are 5 days and usually held in August.

Check our website regularly or subscribe to our e-newsletter to stay tuned with updates about the 2019 summer courses.
# Delft-based MSc Programmes

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<th>Programme</th>
<th>Application Deadline</th>
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<th>Duration</th>
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<td>15th of October</td>
<td>3rd week in October</td>
<td>12 MONTH 2019–2020</td>
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<tr>
<td>MSc in Urban Water and Sanitation</td>
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<td>MSc in Water Management and Governance</td>
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THE DELFT-BASED, 12-MONTH CURRICULUM OF THE MSC PROGRAMME IN SANITATION

The Delft-based, 12-month curriculum of the MSc Programme in Sanitation consists of 68 ECTS credit points and has a Taught Part (39 ECTS credit points) and a Thesis Research Part (29 ECTS credit points).

The taught part has a modular structure, comprising 13 modules ranging from 1 to 6 weeks’ duration. The individual thesis research, follows on completion of the taught programme, although, in order to avoid a ‘cold start’ and to guarantee sufficient time, students will be allocated a research topic and will start preparing for their individual research early on in the programme.

THE DELFT-BASED, 18-MONTH CURRICULA OF THE MSC PROGRAMMES

The Delft-based, 18-month curricula of the MSc Programmes consist of 106 ECTS credit points and have a Taught Part (61 ECTS credit points) and a Thesis Research Part (45 ECTS credit points).

The one-year taught part, has a modular structure and after successful completion, you will do individual research for a six-month period. The research deals with a practical or theoretical problem and may be carried out in collaboration with an organization outside the Netherlands, for example in the home country. Research skills are also built up during the taught part.

JOINT PROGRAMMES

Our Joint Programmes have varying start and end dates and a different duration. See website for more information.

SCHOLARSHIPS

Most scholarship programmes have a deadline which is much earlier than the deadline of our MSc Programmes. See: www.un-ihe.org/scholarships

APPLICATION

You can apply for admission to the MSc Programmes online at our website throughout the year, but make sure to apply well before the application deadline, so you will have time to make the financial arrangements and prepare for your studies at IHE Delft.

ADMISSION REQUIREMENTS

• Bachelor Degree in a related field of study.
• English Language (IELTS: 6.0 / TOEFL iBT: 87 overall or PBT: 502/TWE 4.5).
• Two or more years of work experience in a related field is preferred.
• The MSc Programme in Sanitation also requires an entry exam.

STAY FRESH

IHE Delft promotes Life Long Learning: After a few years, enrol in a refresher course, or a short or online course.

AFTER GRADUATING

• Join the IHE Delft Alumni Community
• Resume or start your work in the water sector
• PhD Programme - 4 years (see page 8)
Integrating science, technology and policy making

As the world enters a period of increasing pressures that cause impact on the environment and human well-being, sustainable development needs to integrate scientific knowledge with technological developments and effective policies. The MSc programme in Environmental Science builds the knowledge and skills necessary to meet the environmental challenges in an integrated way. Each of the programme's specializations provides the essential in-depth knowledge, supported by a broader set of skills, so that graduates of the programme can play their part in a sustainable and innovative future for protection and management of water and natural resources.

Aim of the programme

The unsustainable management of natural resources hampers human development and exacerbates human inequalities. Pollution, depletion of natural resources, the disintegration of ecological functions, and ineffectual policies are matters of local, regional and global concern. Economic development and rising living standards in the developing world, set against increased pressures on the environment, contribute to the urgency of these problems. Preventing further degradation of the environment, and the consequent damage to human society, requires new approaches for sustainable interactions between people and their environment. Sustainability depends on balancing use and conservation of environmental resources, but the challenge is to increase food supply and human welfare while minimising and counteracting the negative impacts on the environment.

To find sustainable solutions and improve the quality of human life, we must first understand the processes that sustain natural systems, how these systems function and how they interact with one another and with human society. The MSc programme in Environmental Science develops the understanding of these processes and how to apply this knowledge for better natural resource management in your day-to-day work. During the programme you will learn to analyse and assess environmental systems and problems; be able to propose and plan for sustainable solutions and develop technical measures; and understand the planning and management dimensions of addressing environmental problems. In class ample examples from practice are used to illustrate and reflect on theory and concepts, while group work is applied to gain the necessary skills to address problems in multi-disciplinary teams. During the final phase of the programme, you will produce an independent scientific research project that brings together the knowledge, skills and the critical thinking developed through the individual modules of the programme.

Programme contents

The MSc programme in Environmental Science equips professionals with the necessary capacities for sustainable natural resource management by offering a systems approach. This means you will investigate subsystems and their interactions at global, regional and local scale without losing sight of the overall picture. The programme balances a thorough knowledge of the disciplines taught by each of the programme’s specializations, and the added value of bringing these disciplines together in one coherent programme.

Desired profile

Admission to the programme is open to students and professionals with an interest in environmental sciences and in maintaining environmental integrity to support human development, especially for those interested in helping meet future water and environmental challenges in developing countries and countries in transition. Suitable academic backgrounds include a BSc or MSc in natural sciences, chemistry, environmental science, agriculture, geography, environmental economics, planning and management or engineering. Professional experience in a relevant area is desirable.

Basic knowledge of mathematics, physics and chemistry is a prerequisite. Computer literacy is a valuable asset. Good conversational, reading and writing capabilities in the English language are essential to successfully complete the programme.
SPECIALIZATIONS

APPLIED AQUATIC ECOLOGY FOR SUSTAINABILITY
You will gain a thorough understanding of the natural processes in aquatic ecosystems and be able to apply this knowledge to sustainable management for healthy ecosystems and good water quality in a multidisciplinary setting.

Prospective Students
This specialization is designed for students and professionals who have a strong interest in water quality, sustainable management and conservation of wetland ecosystems, including rivers, swamps, lakes, and estuaries. Suitable academic backgrounds include natural sciences, environmental science, agriculture and engineering.

Topics
- Applied Ecology and Bio-assessment
- Environmental Systems Analysis
- Water Quality Assessment and Monitoring
- River and Floodplain Rehabilitation
- Aquatic Ecosystems: Processes and Applications

Delft-based MSc specialization

ENVIRONMENTAL PLANNING AND MANAGEMENT
You will acquire the knowledge and skills to reflect on and implement environmental planning and management from an interdisciplinary perspective and you will be able to support policy and decision-making for sustainable and strategic water and environmental management in multi-actor systems in urban and rural contexts.

Prospective Students
The specialization is intended for mid-career professionals and students interested in using environmental planning and management, combining environmental and social sciences, to enhance the integrity of the environment to support human development. Suitable academic backgrounds include natural sciences, environmental science, agriculture, social sciences, geography, environmental economics, planning and management.

Topics
- Water and Environmental Law
- Environmental Systems Analysis
- Water and Environmental Policy Analysis
- Environmental Planning and Implementation
- Environmental and Social Impact Assessment for Water-related Policies and Development

Delft-based MSc specialization

ENVIRONMENTAL SCIENCE AND TECHNOLOGY
You will be introduced to research and development leading to technologies that address environmental problems, and apply those technologies in a context of stakeholders, managers and policy makers for appropriate remedial actions.

Prospective Students
This programme is designed for students and professionals who have a strong interest in multidisciplinary and problem-based technology development.

Topics
- Environmental Process Technology
- Environmental Systems Analysis
- Water Quality Assessment and Monitoring
- Industrial Resource Management and Cleaner Production
- Ecotechnologies

Delft-based MSc specialization

ENVIRONMENTAL TECHNOLOGY AND ENGINEERING
You will learn to apply and develop environmental technologies, with a strong focus on multidisciplinary and problem-based technology development.

Prospective Students
The programme is intended for students and professionals interested in the treatment of waste(water) and the recovery of energy and other resources. Suitable academic backgrounds include chemistry, biology, geology, environmental science, agriculture and engineering.

Topics
- Environmental Engineering
- Water and Control Engineering
- Resource Recovery Processes and Engineering
- Waste Management and Treatment
- Advanced Waste Gas Treatment
- Soil Remediation

Delft-based MSc specialization

WETLAND MANAGEMENT
This specialization is intended for students and professionals with a special interest in one of the following topics: aquatic ecology, limnology, wetland ecosystems, or aquatic resources management. Suitable academic backgrounds include natural sciences, chemistry, environmental science, agriculture, geography, environmental economics, planning and management.

Topics
- Limnology
- Ecology of Aquatic Organisms
- Aquatic Ecosystem Management
- Lake Ecology
- Stream and River Ecology
- Wetlands for Wastewater Treatment
- Fisheries and Aquaculture
- Aquatic Ecosystems Processes and Applications
- Wetlands for Livelihood and Conservation

www.imete.eu

www.un-ihe.org/es
MSc PROGRAMME IN URBAN WATER AND SANITATION

Educes professionals in the fields of water supply, sanitation and integrated water engineering and management, particularly in urban areas.

Recent decades have witnessed an increasing rate of urbanization, particularly in developing regions and in countries in transition. About 80% of the world’s megacities can be found in these regions. The high concentration of people in urban areas is placing enormous pressure on the local environment and on available resources. It also generates ever higher demands on municipal services such as water supply and sanitation, continuously challenged by the lack of financial and human resources.

Aim of the Programme
The MSc Programme in Urban Water and Sanitation educates professionals in the fields of water supply, sanitation and water engineering and management, particularly in urban areas. Once they have successfully completed this programme, graduates:
• Can place their profession in the wider social, economic and environmental contexts of urbanization and municipal water and infrastructure services provision;
• Will be able to contribute to the development of innovative approaches to the provision of sustainable and equitable municipal water, sanitation, environmental and infrastructure services in low and middle income countries;
• Will be able to conduct academic research independently.

SPECIALIZATIONS

SANITARY ENGINEERING
You will learn how to deal with wastewater and sludge treatment process operation, maintenance and design, including urban drainage and sewerage, centralized and decentralized systems and land-based and engineered treatment plants.

Prospective Students
This specialization is designed for students and professionals interested in achieving and maintaining water pollution control and public health. It is particularly relevant for those who are or wish to become involved in the provision of urban sanitation services. Suitable academic backgrounds include civil, environmental or chemical engineering and microbiology.

Topics
• Urban Drainage and Sewerage
• Conventional Wastewater Treatment
• Resource Oriented Wastewater Treatment and Sanitation
• Wastewater Treatment Plants Design and Engineering
• Modelling Wastewater Treatment Processes and Plants
• Industrial Effluents Treatment and Residuals Management
• Faecal Sludge Management

Delft-based MSc specialization

WATER SUPPLY ENGINEERING
You will learn to deal with technical aspects of drinking water treatment and distribution in an integrated way, paying attention to the choice of technologies and tools, ranging from low-cost to advanced, engineered to natural treatment systems, and centralized to decentralized options.

Prospective Students
This specialization is designed for students and engineers interested in or dealing with water collection, storage, treatment, transport and distribution. Suitable academic backgrounds include civil, chemical, environmental, hydraulic and mechanical engineering.

Topics
• Unit Operations in Water Treatment
• Disinfection, Adsorption and Natural Processes for Water Treatment
• Groundwater Resources and Treatment
• Water Transport and Distribution
• Desalination and Membrane Technology
• Water Treatment Processes and Plant Design
• Decentralized Water Supply and Sanitation
• Advanced Water Transport and Distribution

Delft-based MSc specialization

URBAN WATER ENGINEERING AND MANAGEMENT
You will learn to deliver both water and wastewater services within the context of the urban water cycle, covering both technical and management aspects.

Prospective Students
This specialization is designed for students and professionals dealing with or interested in water and sanitation services and managing the urban water cycle. Suitable academic backgrounds include civil, environmental and chemical engineering.

Topics
• Drinking and Waste Water Treatment
• Water Transport and Distribution
• Urban Drainage and Sewerage
• Asset Management
• Managing Water Organizations
• Urban Flood Management and Disaster Risk Mitigation
• Urban Water Systems

Delft-based MSc specialization

This specialization is jointly offered with the Asian Institute of Technology, Thailand.
MSc PROGRAMME IN SANITATION

A unique, internationally recognized programme, designed for completion in 12 months. The programme is based at IHE Delft in the Netherlands, with thesis work abroad, while, in the near future, the programme will also be available at universities in Asia, Africa and Latin America.

The state-of-the-art content was developed and is delivered by the world’s leading experts from academia and practice. In this practice orientated programme you will gain an in-depth understanding of urban and peri-urban sanitation and develop the skills necessary to create impact. Skills development is embedded from the start through individual coaching and tailored guidance. Preparatory (e-learning) courses and entry interviews are included. All graduates will benefit from a dedicated career development programme, supported by the Bill and Melinda Gates Foundation and will become a member of the Global Faecal Sludge Management Learning Alliance and alumni community.

Target group
The MSc programme is dedicated to target needs and deliver specialists in a short time, with the necessary qualifications. It aims to attract talented and ambitious young and mid-career sanitation professionals, working in water supply and sewerage companies, municipal assemblies, government ministries, NGOs and consulting firms. Ideally these individuals are dealing with urban and peri-urban sanitation, especially in informal settlements. Participants should have a Bachelor’s or equivalent engineering degree (e.g. civil, sanitary, environmental etc.).

Programme structure
The 68 ECTS points programme consist of a taught and a thesis research part. The taught part has a modular structure, comprising 13 modules ranging from 1 to 6 weeks’ duration, including lectures, laboratory tutorials, field trips, case studies, group work, design exercises and discussions. Students will get to work in the newly constructed faecal sludge laboratory, which is the only specialist laboratory of its kind in the global north.

The individual thesis research (28 ECTS), follows on completion of the taught programme, although, in order to avoid a ‘cold start’ and to guarantee sufficient time, students will be allocated a research topic and will start preparing for their individual research early on in the programme. The field work part of the research will preferably take place in a developing country, hosted by one of IHE Delft’s academic partners and supervised locally by partner institution’s staff. To enable students to pass the entry exam, a set of preparatory e-learning courses are available for those who may need to increase their knowledge in one or more subjects as prerequisite for the programme.

Syllabus
The programme focus is on non-sewered sanitation, as sewerage-based sanitation is the subject of the complementary specialization in Sanitary Engineering. The programme design and module plans have been prepared in cooperation with partners from academia and practice. The input from practice was essential, as the new programme has a clear professional focus. The course content facilitates learning objectives and achievement of final qualification.

The following topics are part of the programme:
• Introduction to Sanitation
• Sanitation Systems and Services
• Sanitation and Public Health
• Analysis of Sanitation Flows
• Sanitation Technology
• Sanitation Governance
• Sanitation Financing
• Behaviour Change and Advocacy
• Emergency Sanitation
• Leadership
• Project Management
• Teamwork Skills Development
• Research Methods for Sanitation

Check our website regularly or subscribe to our e-newsletter to stay tuned with updates about this programme.
MSc PROGRAMME IN WATER MANAGEMENT AND GOVERNANCE

Imparts knowledge and skills needed to evaluate, develop and apply integrated and interdisciplinary approaches, involving hydrological, biophysical, chemical, economic, institutional, legal, policy making and planning aspects, to address water management and governance issues.

The MSc programme in Water Management and Governance provides a unique combination of knowledge, skills and competencies to help comprehensively analyze, critically reflect and effectively contribute to solving contemporary water problems. The question of how to balance objectives of social equity with those of ecological integrity and productivity are at the heart of societal efforts to deal and live with water. In answering this question, science and data are always deeply entangled with particular visions on development, moral world views, and economic or geopolitical interests. This is why the study programme pays explicit critical attention to the definition and workings of authority and power, and to the organisation of democracy in water.

As solutions to water problems always consist of a combination of engineering, institutions and organisations, this programme brings together insights about water quality and quantity - and hence of key biophysical and hydrological processes - with understandings of the infrastructural, political and institutional arrangements to regulate its access, allocation, treatment, use and discharge. Courses on offer thus range from those that are rather technical or natural science oriented (focusing on physical, biological or technical processes) via more skills-oriented modules aimed at acquiring the abilities to 'do' water management and governance effectively (law, conflict resolution, mediation, modelling, environmental assessment) to more interpretive social science courses.

Throughout the programme, there is a lot of attention to different ways of integrating these different disciplines and sources of knowledge. The programme’s anchor are water problems as they are experienced by relevant actors - users, operators, policymakers, politicians, experts - in their everyday dealings with water. The applicability of taught practical and analytical skills for dealing with actual water management and governance situations is therefore the most crucial measure of their value. However, by deepening their insights about how socio-natural processes shape water flows and vice-versa, the programme not just provides tools to help solve problems, but also develops students' theoretical ability to critically compare and reflect on proposed solutions, measuring their effectiveness against wider environmental and social objectives.

An important target audience for the programme are water professionals from Southern countries. However, we also welcome students from other disciplinary and professional backgrounds (lawyers, journalists, entrepreneurs, activists) or countries of origin who aim to specialize in water, and we are open to less experienced students who are interested in studying at IHE Delft because it gives them a unique, broad and interdisciplinary background in contemporary water management and governance questions. The programme's overall ambition is to train and educate reflective water professionals and experts who have the knowledge and capacity to develop, plan, implement and evaluate water management and governance policies and strategies in support of the ecologically wise and socially equitable use of water.

In line with the overall IHE Delft approach to education, the programme's content is diverse: lectures by experts in the field are complemented by practical assignments, work in the laboratory, excursions and group-work. Innovative distance learning and electronic interactive educational tools support the programme. Throughout the educational cycle, lecturers and professors make creative use of opportunities to build on and learn from the rich experiences of students. More generally, the programme is student-centred, which means that students have a large degree of freedom to put together the curriculum that best fits their choice, interests and needs.
## SPECIALIZATION / THEMATIC PROFILES

### WATER COOPERATION AND DIPLOMACY
You will study socio-hydrological dynamics, decision making processes on water resources and services management, water cooperation and diplomacy, water dispute prevention, management and resolution skills and tools.

**Prospective Students**
Professionals, preferably with relevant work experience in the water sector, involved in topics directly or indirectly related to water management and from the water sector or other relevant sectors as well as diplomats, UN staff or other professionals working for international organizations or NGOs.

**Topics**
- Water Management and Governance
- Water Conflict Management
- Water Economics
- Water and Environmental Law
- Water Resources Planning

This specialization is jointly offered with the University for Peace, Costa Rica and Oregon State University, USA.

### WATER CONFLICT MANAGEMENT
You will study water conflict management, particularly alternative dispute resolution processes and develop the skills required to prevent, manage and resolve water-related conflicts.

**Prospective Students**
The thematic profile is designed for water managers as well as for institutional, legal and international relations experts and (social) geographers interested in local, national and international water management.

**Topics**
- Water Management and Governance
- Water Conflict Management
- Institutional Analysis
- Water Resources Planning
- Water and Environmental Law
- Urban Water Governance

### WATER QUALITY MANAGEMENT
You will study the water quality impacts of human activities on aquatic ecosystems, as well as possible remedial actions, considering different levels of environmental stress and in various socio-economic contexts.

**Prospective Students**
The thematic profile is designed for engineers and natural scientists responsible for or involved in planning, developing and implementation of water quality policies, strategies and programmes. Affinity with chemistry and biology is required for this thematic profile.

**Topics**
- Water Management and Governance
- Water Quality Monitoring and Assessment
- Water and Environmental Law
- Aquatic Ecosystems Processes and Applications
- Wetlands for Water Quality
- Environmental Planning and Implementation

### WATER RESOURCES MANAGEMENT
You will study water availability in connection to water use, and seek to develop alternative land use and water allocation policies, including legal and institutional arrangements from the local watershed to the basin scale and beyond.

**Prospective Students**
This profile is designed for engineers, natural scientists and managers responsible for planning, developing and implementing water resources projects and programmes. Affinity with quantitative methods, such as statistical analysis, is required for this thematic profile.

**Topics**
- Water Management and Governance
- Water Economics
- Water Resources Assessment
- Water Systems Analysis and Modelling
- Water Resources Planning
- IWWM as a Tool for Adaptation to Climate Change

### WATER SERVICES MANAGEMENT
You will study the provision of water and sanitation services as well as the management of related infrastructure and critically review institutional and financial instruments and business models considering different socioeconomic contexts.

**Prospective Students**
The thematic profile is designed for broad range of professionals from various academic backgrounds active in the water services sector and involved in the planning, developing and managing of water supply and/or sanitation policies, strategies and programmes.

**Topics**
- Water Management and Governance
- Managing Water Organizations
- Environmental Management and Water Services
- Finance in the Water Sector
- Partnerships for Water Supply and Sanitation
- Urban Water Governance

### TAILOR MADE STUDY PROFILE
The Tailor made study profile offers the possibility for students to compose their own study trajectory within the Water Management and Governance Master Programme. After a foundation phase during which students are exposed to the different disciplines involved in the water management domain, students can compile a study profile from a wide range of available courses and variety of thesis research topics to ensure that the educational programme is fully aligned with their professional needs. They will be guided in this process by professional coaches who will encourage students to reflect on their knowledge and skills, advise them on career possibilities and assist them in selecting a suitable tailor-made study profile. The coaches have extensive knowledge of the needs of the water sector in various parts of the world and student’s employers will be consulted in the process when needed. Prospective water management students may wish to compile a study profile from a wide range of available courses and variety of thesis research topics to ensure that the educational programme is fully aligned with their professional needs. The prospective students may have bachelor or master degrees in Engineering, Natural and Social sciences, Arts, Law, Geography etc.
MSc PROGRAMME IN WATER SCIENCE AND ENGINEERING

The specializations within this programme explore natural and human influences on the water cycle, from the perspectives of civil engineering, information technology and earth sciences. They are of direct relevance to sustainable development because they prepare graduates to improve the sustainable management of human impacts on water resources, design simulation models for various phases of the water cycle, and contribute to the development of integrated solutions for reducing the impact of water-related natural hazards and other water issues.

Aim of the Programme

The programme aims to deepen the knowledge, insights and skills for Hydraulic Engineering (part of Civil Engineering and covering the disciplines River Basin Development, Land and Water Development and Coastal Engineering and Port Development), Hydroinformatics (an IT-oriented discipline) and Hydrology (an Earth Science). These different fields are complementary and ensure exposure of the student to a large variety of water issues from different perspectives, and the ability to develop sustainable solutions for complex water problems.

In particular, this programme provides the education to:

• Improve the management of water resources through assessing and monitoring their condition, the underlying hydrological processes and the vulnerability to hazards;
• Sustain economic development by better flood and drought protection, risk management and hazard reduction, in an era of climate and global change;
• Improve environmental and public health through pollution prevention;
• Sustain and improve water supply, power generation and agriculture through integrated water resources management;
• Improve food production by developing, operating, maintaining and optimising water-related infrastructure;
• Sustain economic growth through the development of coastal and riparian zones;
• Manage and control water systems in an integrated and sustainable way, with stakeholders, through the development of technologies to simulate such systems.

SPECIALIZATIONS

FLOOD RISK MANAGEMENT

You will develop scientific and engineering knowledge needed to reduce the human and socioeconomic losses caused by flooding while at the same time taking into account the social, economic, and ecological benefits from floods and the use of flood plains or coastal zones.

GROUNDWATER AND GLOBAL CHANGE – IMPACTS AND ADAPTATION

You will develop scientific and engineering knowledge and skills needed to assess, understand and simulate the interactions between groundwater, surface water, climate and global change, so as to know how to consider and benefit from these interactions when dealing with adaptation.

Prospective Students

Suitable academic backgrounds include civil/ hydraulic or environmental engineering, earth/ environmental sciences and limnology.

Topics

• Flood Risk Management
• Meteorology and Hydrology
• River Basin Modelling
• Hydroinformatics for Decision Support
• Debris Flow and Flash Flood Management
• Coastal Flood Management
• Spatial Planning

This specialization is a joint programme offered under the European Erasmus Mundus framework the Technical University of Dresden (Germany), and University of Ljubljana (Slovenia).

www.floodriskmaster.org

GROUNDWATER MANAGEMENT

You will develop scientific and engineering knowledge needed to reduce the human and socioeconomic losses caused by flooding while at the same time taking into account the social, economic, and ecological benefits from floods and the use of flood plains or coastal zones.

GROUNDWATER AND GLOBAL CHANGE – IMPACTS AND ADAPTATION

You will develop scientific and engineering knowledge and skills needed to assess, understand and simulate the interactions between groundwater, surface water, climate and global change, so as to know how to consider and benefit from these interactions when dealing with adaptation.

Topics

• Hydrogeology
• Climate Processes and Modelling
• Integrated River Basin and Water Resource Management
• Groundwater and Environmental Impacts
• Groundwater, Society and Policies
• Data Collection, Interpretation and Modelling
• Climate and Global Change Impacts and Adaptation

This specialization is a joint programme offered under the European Erasmus Mundus framework with the Technical University of Dresden (Germany) and IST Lisbon (University of Lisbon, Portugal).

www.groundwatermaster.eu

Prospective Students

Suitable academic backgrounds include hydraulic, civil and environmental engineering, earth and environmental sciences, climate sciences, geography and geology.
Focuses on the understanding, management and development of water resources and water flows and quality in the natural and human-influenced environment, while addressing the multidisciplinary character of human activities dealing with water.

### HYDRAULIC ENGINEERING AND RIVER BASIN DEVELOPMENT

You will develop scientific and engineering knowledge needed to design and implement projects for sustainable use of river systems and their resources, to design and plan hydraulic structures and infrastructures to harness resources from flowing water, to model river flows and morphodynamics, and to manage extreme hydrological events at different scales of water projects (catchments, river reaches, floodplain and width scaled domains).

**Prospective Students**

Students and professionals who want to address challenges related to river engineering and river basin development with an academic background in hydraulics in civil or environmental engineering context (or similar).

**Topics**

- Hydrology and Hydraulics
- River Basin Development and Environmental Impact
  Assessment
- Remote Sensing and Data Acquisition
- Hydraulics Design of Infrastructures
- River Hydraulics and Morphodynamics
- Hydrological Extremes Management and Reservoir Operations

Delft-based MSc specialization

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### HYDRAULIC ENGINEERING – COASTAL ENGINEERING AND PORT DEVELOPMENT

You will develop scientific and engineering knowledge and practical skills to plan, model, design and manage coastal engineering and port development projects, and learn to analyse coastal problems and conceive appropriate solutions.

**Prospective Students**

Students and professionals who are eager to address coastal zone/port development challenges with an academic background in civil/hydraulic engineering.

**Topics**

- Hydrology and Hydraulics
- Coastal Science and Engineering
- Coastal Systems
- Coastal and Port Structures
- Port Planning and Infrastructure Design
- Process based coastal modelling
- Climate change and adaptation in deltas
- Geotechnical Engineering and Dredging

Delft-based MSc specialization

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### HYDROINFORMATICS – MODELLING AND INFORMATION SYSTEMS FOR WATER MANAGEMENT

You will be able to understand the main water-related processes and to develop and apply computer-based mathematical models, web-based information systems and integrated hydroinformatics systems for planning, designing or managing the aquatic environment. Suitable academic backgrounds include civil, agricultural or systems engineering, earth/environmental sciences or physics.

**Prospective Students**

Students and professionals interested in mathematical models, advanced computational tools, web-based information systems and integrated hydroinformatics systems for planning, designing or managing the aquatic environment. Suitable academic backgrounds include civil, agricultural or systems engineering, earth/environmental sciences or physics.

**Topics**

- Hydrology and Hydraulics
- Information Technology and Software Engineering
- Modelling Theory and Computational Hydraulics
- Modelling and Information Systems Development
- Computational Intelligence and Operational Water Management
- River Basin Modelling
- Flood Risk Management

Delft-based MSc specialization

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### HYDROLOGY AND WATER RESOURCES

You will deal with surface and groundwater, addressing both water quantity and quality, learning to understand human influences on the hydrological system and apply tools, such as modelling, for the proper integration of hydrological knowledge and analysis in water resources planning and management.

**Prospective Students**

Students and professionals interested in hydrology, river basin management, prediction and mitigation of floods and droughts, water resources assessment, water supply, hydropower, land use and development, environmental survey and planning. Suitable academic backgrounds include civil or agricultural engineering, earth/environmental sciences or physics.

**Topics**

- Hydrology and Hydraulics
- Hydrogeology
- Surface Hydrology
- Water Quality
- Tracer Hydrology and Flow Systems Analysis
- Data Collection and Interpretation
- Applied Groundwater Modelling

Delft-based MSc specialization

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### LAND AND WATER DEVELOPMENT FOR FOOD SECURITY

You will learn to plan, design, operate and maintain land and water resources and water-related infrastructure, emphasising the modernisation of irrigation, drainage and flood protection schemes, and land use for agriculture.

**Prospective Students**

Students and professionals concerned with the development and management of land and water resources for agricultural purposes, with preferably two years work experience in irrigation, drainage or land and water development. Suitable academic backgrounds include agricultural, irrigation or civil/hydraulic engineering.

**Topics**

- Hydrology and Hydraulics
- Principles and Practices of Land and Water Development
- Design Aspects of Irrigation and Drainage Systems
- Irrigation and Drainage Design
- Management of Irrigation and Drainage Systems
- Conveyance and Irrigation Structures
- Food Security, Health and Environment
- Innovative Approaches for Agricultural Water Management
- Application of Remote sensing for Agricultural Water Management

Delft-based MSc specialization

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This specialization is also offered jointly with the University of Nebraska-Lincoln, USA

www.un-ihe.org/wse
### ONLINE COURSES 2019

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Dates</th>
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<tbody>
<tr>
<td>Biological Wastewater Treatment: Principles, Modelling and Design</td>
<td>07/Jan/19 – 07/Jun/19</td>
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<tr>
<td>Faecal Sludge Management</td>
<td>07/Jan/19 – 10/May/19</td>
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<tr>
<td>Urban Drainage and Sewerage</td>
<td>07/Jan/19 – 10/May/19</td>
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<tr>
<td>Disinfection, Adsorption and Natural Processes for Water Treatment&lt;sup&gt;NEW&lt;/sup&gt;</td>
<td>04/Mar/19 – 28/Jun/19</td>
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<tr>
<td>Water and Environmental Law and Policy</td>
<td>04/Mar/19 – 28/Jun/19</td>
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<tr>
<td>Experimental Methods in Wastewater Treatment&lt;sup&gt;NEW&lt;/sup&gt;</td>
<td>29/Apr/19 – 19/Jul/19</td>
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<tr>
<td>Industrial Resource Management and Cleaner Production</td>
<td>06/May/19 – 06/Sep/19</td>
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<tr>
<td>Modelling Sanitation Systems</td>
<td>06/May/19 – 06/Sep/19</td>
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<tr>
<td>Constructed Wetlands for Wastewater Treatment</td>
<td>02/Sep/19 – 10/Jan/20</td>
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<tr>
<td>Environmental Flows</td>
<td>02/Sep/19 – 10/Jan/20</td>
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<tr>
<td>Governance of Decentralised Sanitation</td>
<td>02/Sep/19 – 10/Jan/20</td>
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<tr>
<td>Industrial Effluent Treatment</td>
<td>02/Sep/19 – 10/Jan/20</td>
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<tr>
<td>Partnerships for Water Supply and Sanitation</td>
<td>02/Sep/19 – 10/Jan/20</td>
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<tr>
<td>Solid Waste Management</td>
<td>02/Sep/19 – 10/Jan/20</td>
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<tr>
<td>Desalination and Membrane Technology&lt;sup&gt;NEW&lt;/sup&gt;</td>
<td>20/Sep/19 – 21/Jan/20</td>
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<td>Water Transport and Distribution</td>
<td>20/Sep/19 – 21/Jan/20</td>
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<tr>
<td>Groundwater Resources and Treatment&lt;sup&gt;NEW&lt;/sup&gt;</td>
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<tr>
<td>Unit Operations in Water Treatment: coagulation, sedimentation, flotation and filtration&lt;sup&gt;NEW&lt;/sup&gt;</td>
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Dates are subject to change - please check the website for updates.

### OPEN COURSEWARE

<table>
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<tr>
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<tbody>
<tr>
<td>Benchmarking for Improved Water Utility Performance</td>
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<tr>
<td>Computational Hydraulics</td>
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<td>Data Sharing for Water Sector Organisations using Spatial Data Infrastructures</td>
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<td>Ecological Sanitation</td>
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<td>E-learning: Preparing for Extreme &amp; Rare Events in Coastal Regions - PEARL</td>
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<tr>
<td>Experimental Methods in Wastewater Treatment</td>
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<td>Faecal Sludge Management</td>
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<td>Faecal Sludge Management (eBook)</td>
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<td>Governance of Decentralized Sanitation</td>
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<td>Hydrology and Hydraulics</td>
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<td>Industrial Resource Management and Cleaner Production</td>
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<td>Introduction to Urban Water Distribution (eBook)</td>
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<td>Open Source Software for Preprocessing GIS Data for Hydrological Models</td>
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<td>Spate Irrigation Systems</td>
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<td>Urban Drainage and Sewerage</td>
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<td>Water Quality Assessment</td>
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### SUMMER COURSES

29/Jul/19 – 02/Aug/19

Course topics include:
water diplomacy, communication, leadership, entrepreneurship and gender.

Please check the website for updates.

www.un-ihe.org/online-courses
www.un-ihe.org/ocw
www.un-ihe.org/summer-courses
## GRADUATE PROFESSIONAL DIPLOMA PROGRAMME

Participants select courses among clusters belonging to six different tracks.

The programme consists of a sequence of four or five online courses, on-campus short courses or a combination.

The number of ECTS points vary from 3 to 6 per course. The minimum study load for obtaining a diploma is 20 ECTS, which equals a workload of 560 hours.

To ensure that the programme fits the personal circumstances of the participant, a personal study plan will be designed in collaboration with a study advisor.

The total duration of the programme depends on this study plan, with a minimum of 1.5 and a maximum of 4.5 years.

### Online Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Sanitary Engineering</th>
<th>Sanitation Engineering</th>
<th>Water Supply Engineering</th>
<th>Water and Wastewater Treatment Technology</th>
<th>Urban Water Networks and Floods</th>
<th>Cleaner Production and Residuals Management</th>
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<tr>
<td>Biological Wastewater Treatment</td>
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<td>Ground Water Resources and Treatment</td>
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<td>Unit Operations in Water Treatment: coagulation, etc.</td>
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<td>Urban Drainage and Sewerage</td>
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<td>Urban Flood Management and Disaster Risk Mitigation*</td>
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<td>Water Transport and Distribution</td>
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### On-Campus Short Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Sanitary Engineering</th>
<th>Sanitation Engineering</th>
<th>Water Supply Engineering</th>
<th>Water and Wastewater Treatment Technology</th>
<th>Urban Water Networks and Floods</th>
<th>Cleaner Production and Residuals Management</th>
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<tbody>
<tr>
<td>Advanced Water Transport and Distribution</td>
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<td>Advanced Water Treatment and Re-use</td>
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<td>Anaerobic Wastewater Treatment</td>
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<tr>
<td>Analysis of Sanitation Flows NEW</td>
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<tr>
<td>Asset Management</td>
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<td>Behaviour Change and Advocacy NEW</td>
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<td>Conventional Wastewater Treatment</td>
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<td>Unit Operations in Water Treatment: coagulation, etc.</td>
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* New courses and tracks currently being developed - please check the website for the latest information.*

[www.un-ihe.org/gpdp](http://www.un-ihe.org/gpdp)
## ENVIRONMENTAL SCIENCE

<table>
<thead>
<tr>
<th>Course</th>
<th>Dates</th>
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<tbody>
<tr>
<td>Water Quality Assessment and Monitoring</td>
<td>01/Apr/19 – 18/Apr/19</td>
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<tr>
<td>Nanotechnology for Water and Wastewater Treatment</td>
<td>01/Apr/19 – 12/Apr/19</td>
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<tr>
<td>Water and Environmental Policy Analysis</td>
<td>01/Apr/19 – 18/Apr/19</td>
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<tr>
<td>Environmental Planning and Implementation</td>
<td>23/Apr/19 – 10/May/19</td>
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<tr>
<td>Industrial Resource Management and Cleaner Production</td>
<td>23/Apr/19 – 10/May/19</td>
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<tr>
<td>Data Analysis and Modelling for Aquatic Ecosystems</td>
<td>23/Apr/19 – 07/Jul/19</td>
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<td>Aquatic Ecosystems: Processes and Applications</td>
<td>10/Jul/19 – 28/Jul/19</td>
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<tr>
<td>Environmental Assessment for Water-related Policies and Developments</td>
<td>10/Jul/19 – 28/Jul/19</td>
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<tr>
<td>IWRM as a Tool for Adaptation to Climate Change</td>
<td>01/Jul/19 – 19/Jul/19</td>
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<td>Solid Waste Management</td>
<td>01/Jul/19 – 19/Jul/19</td>
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<tr>
<td>Strategic Planning for River Basins and Deltas</td>
<td>01/Jul/19 – 19/Jul/19</td>
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<tr>
<td>Wetlands for Livelihoods and Conservation</td>
<td>01/Jul/19 – 19/Jul/19</td>
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## URBAN WATER AND SANITATION

<table>
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<th>Course</th>
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<tr>
<td>Unit Operations in Water Treatment: coagulation, sedimentation, flotation and filtration</td>
<td>14/Jan/19 – 01/Feb/19</td>
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<td>Urban Drainage and Sewerage</td>
<td>14/Jan/19 – 01/Feb/19</td>
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<td>Asset Management</td>
<td>11/Feb/19 – 01/Mar/19</td>
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<tr>
<td>Conventional Wastewater Treatment</td>
<td>11/Feb/19 – 01/Mar/19</td>
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<tr>
<td>Disinfection, Adsorption and Natural Processes for Water Treatment</td>
<td>11/Feb/19 – 01/Mar/19</td>
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<td>Anaerobic Wastewater Treatment</td>
<td>04/Mar/19 – 08/Mar/19</td>
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<tr>
<td>Groundwater Resources and Treatment</td>
<td>04/Mar/19 – 22/Mar/19</td>
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<tr>
<td>Resource Oriented Wastewater Treatment and Sanitation</td>
<td>04/Mar/19 – 22/Mar/19</td>
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<tr>
<td>Wastewater Treatment Plants Design and Engineering</td>
<td>01/Apr/19 – 18/Apr/19</td>
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<tr>
<td>Water Transport and Distribution</td>
<td>01/Apr/19 – 18/Apr/19</td>
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<tr>
<td>Advanced Water Treatment and Re-use</td>
<td>23/Apr/19 – 10/May/19</td>
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<td>Desalination and Membrane Technology</td>
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<td>Modelling Wastewater Treatment Processes and Plants</td>
<td>23/Apr/19 – 10/May/19</td>
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<td>Industrial Effluents Treatment and Residuals Management</td>
<td>10/Jul/19 – 28/Jul/19</td>
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<td>Water Treatment Processes and Plant Design</td>
<td>10/Jul/19 – 28/Jul/19</td>
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<tr>
<td>Advanced Water Transport and Distribution</td>
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<tr>
<td>Decentralised Water Supply and Sanitation</td>
<td>01/Jul/19 – 19/Jul/19</td>
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<td>Experimental Methods in Wastewater Treatment NEW</td>
<td>01/Jul/19 – 19/Jul/19</td>
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<td>Faecal Sludge Management</td>
<td>01/Jul/19 – 19/Jul/19</td>
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<tr>
<td>GIS and Remote Sensing Applications for the Water Sector</td>
<td>01/Jul/19 – 19/Jul/19</td>
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## SANITATION

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Sanitation Systems and Services NEW</td>
<td>22/Apr/19 – 11/May/19</td>
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<tr>
<td>Sanitation and Public Health NEW</td>
<td>13/May/19 – 25/May/19</td>
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<td>Analysis of Sanitation Flows NEW</td>
<td>27/May/19 – 01/Jun/19</td>
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<tr>
<td>Sanitation Technology NEW</td>
<td>10/Jun/19 – 13/Jul/19</td>
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<td>Sanitation Governance NEW</td>
<td>22/Jul/19 – 10/Aug/19</td>
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<tr>
<td>Sanitation Financing NEW</td>
<td>12/Aug/19 – 17/Aug/19</td>
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<td>Behaviour Change and Advocacy NEW</td>
<td>26/Aug/19 – 07/ Sep/19</td>
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<td>09/ Sep/19 – 21/ Sep/19</td>
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<td>30/ Sep/19 – 12/ Oct/19</td>
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## WATER MANAGEMENT AND GOVERNANCE

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<td>Water and Environmental Law</td>
<td>11/Feb/19 – 01/Mar/19</td>
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<tr>
<td>Managing Water Organisations</td>
<td>04/Mar/19 – 22/Mar/19</td>
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<td>Water Conflict Management I</td>
<td>04/Mar/19 – 22/Mar/19</td>
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<tr>
<td>Water Resources Assessment</td>
<td>04/Mar/19 – 22/Mar/19</td>
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<td>Water Conflict Management II</td>
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<td>Finance in the Water Sector</td>
<td>23/Apr/19 – 10/May/19</td>
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<td>Water Resources Planning</td>
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<td>Partnerships for Water Supply and Sanitation</td>
<td>10/Jun/19 – 28/Jun/19</td>
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<td>Water Economics</td>
<td>16/Sep/19 – 27/Sep/19</td>
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## WATER SCIENCE AND ENGINEERING

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<td>Port Planning and Infrastructure Design</td>
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<td>Coastal Systems</td>
<td>11/Feb/19 – 01/Mar/19</td>
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<tr>
<td>Computational Intelligence and Operational Water Management</td>
<td>04/Mar/19 – 22/Mar/19</td>
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<td>Tracer Hydrology and Flow Systems Analysis</td>
<td>04/Mar/19 – 22/Mar/19</td>
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<td>Hydropower Water Conduit Design</td>
<td>11/Mar/19 – 22/Mar/19</td>
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<td>Groundwater Data Collection and Interpretation</td>
<td>01/Apr/19 – 18/Apr/19</td>
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<td>Hydrological Data Collection and Processing</td>
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<td>River Basin Modelling</td>
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<td>Integrated Hydrological and River Modelling</td>
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<td>Management of Irrigation and Drainage Systems</td>
<td>23/Apr/19 – 10/May/19</td>
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<td>Planning and Delivery of Flood Resilience</td>
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<td>23/Apr/19 – 10/May/19</td>
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<td>Design of Hydropower Schemes</td>
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<td>Applied Groundwater Modelling</td>
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<td>Remote Sensing for Agricultural Water Management</td>
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<td>Water Sensitive Cities</td>
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<td>Data Acquisition, Preprocessing and Modelling using HEC-RAS</td>
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<td>Data Acquisition, Preprocessing and Modelling using PCRaster Python</td>
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<td>Data Acquisition, Preprocessing and Modelling using SWAT</td>
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<td>Geostatistics for Water Management and Environmental Sciences</td>
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<td>Google Earth Engine for Spatio-Temporal Analysis of Hydrological Extremes</td>
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<td>Morphological Modeling Using Delft3D</td>
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<td>Open Source Software for Preprocessing GIS data for Hydrological Models</td>
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<td>Environmental Modelling using PCRaster</td>
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<tr>
<td>Where there is little data: How to estimate design variables in poorly gauged basins</td>
<td>28/Oct/19 – 08/Nov/19</td>
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Dates are subject to change - please check the website for updates.
The Sustainable Development Goals (SDGs) are important and ambitious goals that keep us at IHE Delft focused on our role in addressing water and development challenges.

As a water education institute providing training, research and capacity development in water-related topics, one of our most important goals is ‘Clean water and sanitation’. However, water cannot be seen in isolation and is often a precondition for other goals. Therefore, together with our partners, we are also contributing to other SDGs, such as: zero hunger, gender equality, affordable and clean energy, and sustainable cities and communities, among others.

By introducing new monitoring techniques and developing innovative solutions, we will help to achieve ambitious goals such as a 25% increase in water productivity by 2030. IHE Delft’s main focus as we approach 2030 will be to further strengthen the connections between our different project activities. We will do this by emphasizing our inter- and transdisciplinary approach in all our activities. We are looking forward to doing this together with our partners and we welcome any ideas for collaborative initiatives.

IHE Delft Institute for Water Education is the largest international graduate water education facility in the world and is based in Delft, the Netherlands. The Institute confers fully accredited MSc degrees, and PhD degrees in collaboration with partners. Since 1957 the Institute has provided graduate education to more than 15,000 water professionals from over 165 countries, the vast majority from the developing world.

The mission of IHE Delft is to contribute to the education and training of professionals, to expand the knowledge base through research and to build the capacity of sector organizations, knowledge centres and other institutions active in the fields of water, the environment and infrastructure in developing countries and countries in transition.

Engage with the IHE Delft community anytime, anywhere in the world.