

Biological Wastewater Treatment Online Course: Principles, Modeling and Design

Course provider: IHE Delft Institute for Water Education

Course coordinators: Dr. Francisco Rubio Rincon

Duration: 22 weeks

Start date: 2 September 2019

Application to: IWA or IHE Delft

Application Deadline: 31 August 2019

Fee: Euro 1076

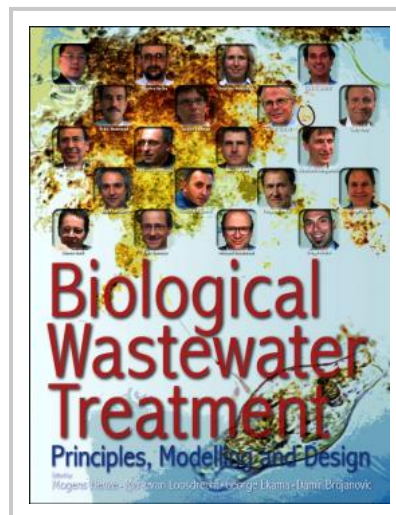
About the online course

Over the past twenty years, the knowledge and understanding of wastewater treatment has advanced extensively and moved away from empirically-based approaches to a fundamentally-based 'first principles' approach embracing chemistry, microbiology, physical and bioprocess engineering, and mathematics. Many of these advances have matured to the degree that they have been codified into mathematical models for simulation by computers. For a new generation of young scientists and engineers entering the wastewater treatment profession, the quantity, complexity and diversity of these new developments can be overwhelming, particularly in developing countries where access is not readily available to advanced level courses in wastewater treatment. This online course seeks to address that deficiency. It assembles and integrates the postgraduate course material of a dozen or so professors from research groups around the world that have made significant contributions to the advances in wastewater treatment.

This internet-based curriculum in biological wastewater treatment consists of a more than 40 hours of video-recorded lectures by the author professors all compiled into a DVD package available to those registered for the online course, and of the textbook, lecture handouts, and tutorial exercises for students' self-study. Upon completion of this curriculum, the modern approach of modelling and simulation to wastewater treatment plant design and operation - be it activated sludge, biological nitrogen and phosphorus removal, secondary settling tanks or biofilm systems - can be embraced with deeper insight, advanced knowledge and greater confidence.

Course contents

- **Wastewater Treatment Development** *M. Henze, M.C.M. van Loosdrecht, G.A. Ekama and D. Brdjanovic*
- **Microbial Metabolism** *Y. Comeau*
- **Wastewater Characterization** *M. Henze and Y. Comeau*
- **Organic Matter Removal** *G.A. Ekama and M.C. Wentzel*
- **Nitrogen Removal** *G.A. Ekama and M.C. Wentzel*
- **Innovative Nitrogen Removal** *M.C.M. van Loosdrecht*
- **Phosphorus Removal** *M.C. Wentzel, Y. Comeau, G.A. Ekama, M.C.M. van Loosdrecht and Damir Brdjanovic*
- **Pathogen Removal** *C.P. Gerba*
- **Aeration and Mixing** *M.K. Stenstrom and D. Rosso*
- **Toxicity** *J.H.G. Orozco*
- **Bulking Sludge** *M.C.M. van Loosdrecht, A.M. Martins and G.A. Ekama*



- **Final Settling** *Takacs and G.A. Ekama*
- **Membrane Bio-reactors** *S. Judd, B. Kim and G. Amy*
- **Modelling Activated Sludge Processes** *M.C.M. van Loosdrecht, G.A. Ekama, M.C. Wentzel, Damir Brdjanovic and C.M. Hooijmans*
- **Process Control** *Gustaf Olsson*
- **Anaerobic Wastewater Treatment** *J.B. van Lier, N. Mahmoud and G. Zeeman*
- **Modelling Biofilms** *E. Morgenroth*
- **Biofilm Reactors** *E. Morgenroth*

General information

IHE Delft Institute for Water Education develops and provides demand-responsive and duly accredited postgraduate education, joint research and capacity building services to individuals and organizations throughout the developing world. These innovative learning materials were produced under the framework of the UNESCO-IHE Partnership for Water Education and Research (PoWER). The innovative delivery format makes learning exciting, flexible, interactive and effective. It allows participants anywhere in the world to learn at their own convenience, and immediately apply their newly acquired knowledge in their working environment. The online courses are intended for professionals working in public and private institutions, NGOs, and academic institutions, and are ideal for those with families who want to upgrade their skills from the comfort of their own home or office. A typical course covers a four-month period, and requires around eight hours of study per week (total study load 140 hours). During an online course IHE Delft lecturers provide intensive guidance, and there are many opportunities to obtain feedback from and interact with fellow participants. Participants can access the online courses at any time via IHE Delft's Online Learning Environment, which can be used to download training materials and for communication. This innovative learning materials and the book were produced under the framework of the UNESCO-IHE Partnership for Water Education and Research (PoWER).

Fee and entry requirements

The course fee is €1076, which includes access to the course materials as well as individual guidance and mentoring during the course. The maximum number of participants is 20, and the **deadline for registration to the course is August 31st 2019**. The course language is English. A reliable and reasonably fast (ideally 512 kbps) internet connection is necessary. The course material is also provided as a package including more than 40 hours of video materials on a DVD and the hardcopy of the book *Biological Wastewater Treatment: Principles, Design and Modelling* [1], edited by M. Henze, M.C.M. van Loosdrecht, G.A. Ekama and D. Brdjanovic (2008). IWA Publishing, ISBN 13: 9781843391883, pp. 526. The book is also used for teaching as part of a lecture series in the Sanitary Engineering specialization of the UNESCO-IHE's Masters Program in Municipal Water and Infrastructure.

Upon successful completion of the course participants will receive the Course Certificate issued by IHE Delft. The course is accredited and from 2012 six ECTS will be granted to participants that successfully complete the course and a final exam.

Scholarships are available via Nuffic.

Registration and further information

To register or to download a scholarship application form [please click here](#) [2]. Further information on this online learning course and IHE Delft's Sanitary Engineering specialization can be obtained from the course coordinator Dr. Francisco Rubio Rincon (f.rubiorincon@un-ihe.org [3]) or by visiting the IHE Delft web site (<https://www.un-ihe.org/online-course-biological-wastewater-treatment-principles-modelling-and-design> [4]).

Print:

Standard price: £0 / €0 / \$0

Member price: £0 / €0 / \$0

