

The growing importance of education for MBR staff, operators and management

The implementation of MBR technology for municipal wastewater treatment is growing fast in the Netherlands. The first MBR (pilot) installations were intensively and closely monitored by scientists, consultants and (senior) process-technologists.

For good operational results of MBR-installations it is essential that operators have sufficient knowledge of the processes and skills. The course 'Membrane Bioreactor' by Wateropleidingen, which examines all aspects of the MBR technology, has proved itself for technicians and operators in the last few years. The course is an interactive and intensive training given by highly qualified, enthusiastic and experienced teachers. The course members experienced a practical course that helped them with designing, building, managing or operating a membrane bioreactor installation.

The membrane bioreactor (MBR) is seen as the most promising wastewater treatment technology for the future. After successful treatment of industrial wastewaters and recent research programmes, the MBR technique has been optimised in the direction of low effluent concentrations and high flows. Unfortunately, the MBR technology and its implementation were growing faster than the related knowledge to design, build, support and operate such a wastewater treatment system. Especially the knowledge and skills of operators had been neglected, which can lead to bad references, high costs, and neglect of MBR technology. Wateropleidingen has therefore organised a number of MBR

training programmes to support technologists and operators.

Nowadays the membrane bioreactor is starting to become a more ordinary wastewater treatment plant. Such wastewater treatment plants are controlled by operators, and just followed from a distance by more specialized (and often higher educated) personnel. The knowledge and skills of the operators becomes therefore more important for good and efficient operation of the MBR. Especially in case of some less known problems, like the optimization of the membrane cleaning process. It is therefore very important to educate operators early in the process!

Development

In 2001 Wateropleidingen started, in co-operation with some experienced MBR specialists in the Netherlands, to develop a course to support technicians and operators. The focus of this course is to get insight of the MBR fundamentals and to help reduce risks in the realisation of full-scale systems. The first course was held in March 2002 and was visited by procestechicians from the water authorities, some consultants and operators of industrial plants.

In October 2003 three operators of Water board Rijn en IJssel followed the course because they became responsible for the operation of the new pilot membrane bioreactor in Varsseveld. This was the beginning of a new phase in the development of the course.

At the end of 2004 Wateropleidingen organised a special course mainly for operators of Water board Hollandse Delta. They had to operate the new hybrid MBR which will be build at Heenvliet. The regular membrane bioreactor course of Wateropleidingen takes 2.5 days. The in-company course took three days. In those three days extra lessons were given by the senior procestechicologist of the Water board about the case of Heenvliet. A guest lecturer of the membrane supplier also gave a lesson

on how to operate the membranes, including the cleaning process.

Regular course description

The MBR course of Wateropleidingen handles all aspects of the technology. The course is an interactive and intensive training given by highly qualified and experienced teachers. You will get an insight look into the working of a MBR and learn on how to evaluate the performance. You will learn how to assess the critical factors involved and how to control them.

The following items are covered during the course:

- principles of the MBR,
- membranes and their characteristics,
- biological processes in de MBR,
- interaction of the biology with the membranes,
- process control,
- operational costs and performance,

The course members experienced a course that helped them with designing, building, managing or operating a membrane bioreactor installation. Especially the practical experiences and enthusiastic contribution of the lecturers were highly appreciated.

Looking forward

In the (nearby) future there will be more wastewater treatment plants working with MBR-technology. The operators of those plants have partly other needs than the (process)technologists related to the design and building process of the plant. Therefore the operational knowledge of MBR plants will gradually be implemented in the wastewater courses like TAZ, about (waste)water treatment techniques and UTAZ about: comprehensive (waste)water treatment techniques of Wateropleidingen. The membrane bioreactor course will probably separate in a part for technicians and a part especially for operators.

Contact

For those who are interested in following this membrane bioreactor course in the Netherlands or in your home country please visit our website (www.wateropleidingen.nl) or e-mail to: info@wateropleidingen.nl.

Edwin de Buijzer
co-ordinator wastewater courses Wateropleidingen
P.O. Box 1410, 3430 BK Nieuwegein
phone: +31 30 606 94 00
e-mail: edwin.debuijzer@wateropleidingen.nl

Course members are visiting the Beverwijk research project.

