AquaEnviro

Training Solutions for the wastewater & waste industries

Consultancy and events in environmental science and engineering

Training Solutions

Aqua Enviro provide specialist, technical training in wastewater treatment, biosolids handling and the disposal of biodegradable organic waste streams.

We provide an annual calendar of training events and also have the expertise to pull together bespoke training, specifically designed for your training needs.

Standard Training Courses

We deliver a regular series of training courses at our own training facility in Wakefield. All of these courses are delivered by our pool of experienced trainers, each recognised as having extensive technical knowledge and expertise in their field.

Our training facility has a dedicated laboratory enabling delegates to see first-hand many of the microbial and biochemical concepts covered in some of the courses.

Each course involves 6 to 7 hours of training, comprising formal lectures, worked examples, discussion sessions and small group problem solving exercises.

"The feedback I have received from attendees has all been positive. I think this was because the course content was based on Scottish Water's improvement plans. Very good trainers who kept the day moving on, but were informal in their approach, which was appreciated."

Scottish Water, 2015

"Incredibly knowledgeable trainers, relating comments to the industry in which individuals worked as well as catering for the range of questions this created"

Veolia, 2015

In-House Training

Working with specialist trainers we can put together a tailored programme to suit the needs and budget of your company. All of the in-house training programmes are developed in consultation with the trainer and the client to identify the level of expertise of the delegates, their background and the client objectives for the training course.

Our trainers have real, on-site experience, which enables them to give practical guidance on how to best operate an Activated Sludge or Anaerobic Digestion plant to improve optimisation and efficiency.

The training schedule can range from 1-day through to intensive 5-day courses and can include specific site-based training if required.

Visit aquaenviro.co.uk/events/training to view our current course dates.

Courses we offer

Design of Activated Sludge Systems
7th March 2017

A specialised day of training for those working with anaerobic digestion treating water and wastewater.

Course content:

- Understanding how bacteria remove BOD, ammonia, nitrate and phosphorus

- The kinetics of BOD, N and P removal and application of kinetics to design

- Reactor configurations to optimise treatment performance, complete mix to plug-flow

- Designing and sizing the individual zones (anaerobic, anoxic and aerobic)

- Ensuring good sludge settleabilty by appropriate selector design

- Calculating the aeration requirements

- Final sedimentation tank design based on SSVI3.5

"Really enjoyed the course. I thought the programme, content and speakers were brilliant. Might also add that the venue was well set out and the food was excellent"

Wessex Water, 2016

"The course was very good - presentations were excellent."

Scottish Water Horizons, 2015

Operation and Control of Activated Sludge Plants
8th March 2017

Course content:

- Layout of a typical treatment plant and the importance of each unit operation

- Primary sedimentation tanks, monitoring performance and improving efficiency

- The basics of activated sludge: understanding loading rate (F/M) and sludge age, ensuring the plant operates at the right value

- Checking aeration efficiency: is there enough aeration and reducing energy costs

- Sludge settleability: ensuring the sludge settles well and minimising foaming and bulking problems

- Optimising the performance of the secondary settlement tank

- Good operator practice for odour reduction

![AquaEnviro]

Courses we offer

Microscopic Examination for the Operation & Control of Wastewater Treatment Plants

9th March 2017

Course content:

- **The Protozoa** - introduction to floc morphology and protozoa

- **Lab session** - using the microscope; floc structure; protozoa indentification; filament numbers

- **Interpreting the results of microscopic examination** - health of the plant; changes that may have occurred in the influent; process conditions (F/M, sludge age); problems with the process (low O2, under/overloading; nutrient deficiency; toxicity

- **The Filaments** - filament characteristics on wet mounts; cell size; shape; filament width; length; branching etc.; staining; gram; neisser; sulphur

- **Lab session** - methods for identifying species; filament characteristics on wet mountsl; ientification chartsS; sained filament characteristics; gram and neisser staining

- **Control strategies for filamentous bacteria** - chemical and physical strategies

- **Design considerations to eliminate filaments** - selectorsf; loc loading; plug
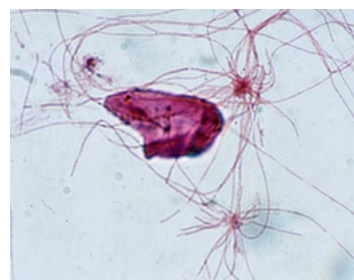
Kinetic Process Modelling for Optimising Aerobic & Anaerobic Treatment Plants

Date TBC

Course content:

- **Introduction to kinetic process modelling** - what is kinetic process modelling? The use of process modelling and its potential in process design and optimization

- **Introduction to fundamental equations of kinetic modelling** - basic concepts; biological models (ASM1, ADM1)

- **Setting up process models** - requirements for process simulation; data collections and assessment; engineering checks; calibration and validation

- **Popular kinetic process modelling tools** - BioWin; GPS-X; Simba

- **Modelling aerobic treatment plants** - modelling activated sludge process with BioWin

- **Modelling anaerobic digesters with BioWin**

- **Industrial Case Studies**

aquaenviro.co.uk/events/training

![AquaEnviro logo]

Courses we offer

Phosphorus Removal and Tertiary Treatment Processes
Date TBC

A specialised day of training for those working with anaerobic digestion treating water and wastewater.

Course content:
- Understanding the digestion process
- Digester operation
- Digester foaming
- Feeding, mixing and heating
- Digester biogas
- Dewatering the digestate and handling the dewatering liquor treatment
- Advanced digestion

"Just a note regarding the digestion training yesterday, which I thought was excellent – really good presenters and I'll recommend this to other members in my process team and operators on digestion sites in future."

Severn Trent Water, 2016

Courses we offer

Digester operation and making the most of the digestate
17 - 18th May 2017

This new 2 day course is an essential investment for anyone interested in making the most of their plant, for those considering a new build facility or plant upgrades to increase the value of the digestate

Course content:

Day 1 - Operating Anaerobic Digesters and Opportunities for Nutrient Recovery:

- The different phases of AD and the key terms (Hydrolysis to methanogenesis; and the importance of volatile fatty acids, alkalinity, pH, temperature)

- Key metrics for digester operation – Organic Loading Rate, Hydraulic Retention Time, Methane Yield and Volatile Solids Destruction

- Options for further processing and recovery of nutrients (including digestate recirculation and nitrogen and phosphorus removal)

- Common operational problems and solutions

Day 2 - Digestate and Digester Optimisation:

- Optimising digester performance for maximum biogas production, and understanding how this affects digestate dewaterability

- Potential markets for digestate

- Agricultural use of digestate: waste vs. product, logistics (such as transport and spreading), complying with legislation, marketing to farmers. This will cover waste, non-waste (crop) and sludge digestates

- Importance of quality – including physical, chemical and microbiological aspects

- Valorising digestate (technologies and markets)

- Using digestate in non-agricultural markets

aquaenviro.co.uk/events/training

Trainers

Our expert trainers have real, on-site experience which enables them to give invaluable, practical guidance on how to improve optimisation and efficiency onsite. Trainers are selected both for their technical expertise and communication/presentation skills.

Matthew Smyth: BSc (Hons), MRes, MBA, CSci., CIWEM, MCIWEM
Technical Associate Director, Aqua Enviro

Matt specialises in optimising AD plants and failing digesters. Matt presents regularly at conferences on both activated sludge and anaerobic digestion. Over the past 5 years he has trained over 200 professionals in these areas.

Rowland Minall
Operations' Manager

Rowland is a Chartered Scientist and Process Engineer who has been actively involved in the Municipal Wastewater and Biosolids Industry for over ten years. His current areas of interest are sludge dewatering, treatment and disposal

Dr David Tompkins
Bioresources Development Manager, Aqua Enviro

David is an expert on biowaste treatment and product quality, with a particular focus on product safety and suitability for use in agriculture and horticulture. David often delivers presentations at AD and composting conferences to highlight the on-going mismatch between academic approaches to nutrient recovery within the circular economy and the economic realities.

Matt Taylor
Organics Technical Manager, Aqua Enviro

Matt has around 10 year's practical experience in the resource management, water and agricultural industries, providing technical and regulatory advice to material producers, recyclers, policy makers and regulators. Matt is an experienced public speaker and trainer.

Dr Gergely Forgacs
Senior Process Engineer

Gergely obtained his PhD in biosciences from Chalmers University of Technology, (Sweden); his main focus was pre-treatment optimization, process modelling and economic analysis of food waste digestion. He has substantial experience in troubleshooting and modelling of wastewater treatment and anaerobic digestion processes and is also a process modelling specialist (BioWin)

aquaenviro.co.uk/events/training

AquaEnviro

Aqua Enviro
8 Appleton Court
Wakefield
West Yorkshire
WF2 7AR

conferences@aquaenviro.co.uk
www.aquaenviro.co.uk

Conferences and Training:
+44 (0)1924 257891

Consultancy:
+44 (0)1924 242255

www.aquaenviro.co.uk