

COURSE PROGRAMME

THURSDAY, 28th JUNE

8:50	Course opening <i>Dr. Juan J. Casares Long</i> <i>Rector of the USC</i>
9:00 – 10:00	State of the art of Sewage Treatment Plants (STPs)
10:00 – 11:00	Biofilm reactors with fixed and suspended support <i>Dr. Luis Larrea Iturrate</i> <i>CEIT & Tecnun (U. Navarra)</i>
11:00	<i>Coffee break</i>
11:30 – 12:30	Aerobic granulation technology <i>Dr. Anuska Mosquera Corral</i> <i>University of Santiago de Compostela</i>
12:30 – 13:30	Anammox based processes for nitrogen removal <i>Dr. José Luis Campos Gómez</i> <i>University of Santiago de Compostela</i>

15:00 – 16:00	Discussion session
16:00 – 19:00	Practicum

FRIDAY, 29th JUNE

9:00 – 10:00	Membrane Biological Reactors <i>Dr. Joaquim Comas Matas</i> <i>University of Girona</i>
10:00 – 11:00	Processes based on the growth of biofilms on gas permeable membranes: Biomembrane reactors <i>Dr. Ana Lorena Esteban García</i> <i>University of Cantabria</i>
11:00	<i>Coffee break</i>
11:30 – 12:30	Membrane hybrid configurations <i>Dr. Juan M. Garrido Fernández</i> <i>University of Santiago de Compostela</i>
12:30 – 13:30	Discussion Session

15:00 – 19:00	Practicum
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MONDAY, 2nd JULY

9:00 – 10:00	Phosphorus removal processes <i>Dr. Juan M. Garrido Fernández</i> <i>University of Santiago de Compostela</i>
10:00 – 11:00	Organic micropollutants: Occurrence and removal mechanisms <i>Dr. Sonia Suárez Martínez</i> <i>University of Santiago de Compostela</i>
11:00	<i>Coffee break</i>
11:30 – 12:30	VOC and Odour removal in STPs <i>Dr. Jerónimo Hernández Sicilia</i> <i>University of Santiago de Compostela</i>
12:30 – 13:30	Innovative processes for resources recovery from wastewaters <i>Helena Moralejo Gárate</i> <i>Technical University of Delft (The Netherlands) & University of Santiago de Compostela</i>

15:00 – 16:00	Discussion session
16:00 – 19:00	Practicum

TUESDAY, 3th JULY

9:00 – 10:00	Application of microbial ecology to the operation of sewage treatment plants <i>Dr. Mónica Figueroa Leiro</i> <i>University of Santiago de Compostela</i>
10:00 – 11:00	Ecotoxicological evaluation of STP effluents <i>Dr. Antonio J. García Fernández</i> <i>University of Murcia</i>
11:00	<i>Coffee break</i>
11:30 – 12:30	LCA as a tool to evaluate the environmental impact of wastewater treatment processes <i>Dr. Maite Moreira Vilar</i> <i>University of Santiago de Compostela</i>
12:30 – 13:30	Discussion Session

15:00 – 16:00	Examination
16:00 – 19:00	Practicum

WEDNESDAY, 4th JULY

9:00 - 13:30	Technical visit to a innovative Sewage Treatment Plant
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16:00 - 16:30	Certificate award ceremony and Closure of the course <i>Dr. Juan M. Lema Rodicio</i> <i>Dean of the School of Engineering</i>
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SOCIAL PROGRAMME

- Guided tour through the historical part of the city of Santiago de Compostela (Friday evening)
- Farewell dinner (Tuesday evening)

REGISTRATION

- **Registration procedure:** please fill in the registration form available at www.novedar.com. After paying the registration fee by bank transfer to Banco Santander Central Hispano (Bank account: 0049-2584-90-2214002210; Holder: Universidad de Santiago de Compostela; Issue: 3rd Summerschool Novedar) send a copy to the Secretariat.
- **Registration Fees** (including course stuff and the whole social programme): 1500 € for Companies and 1000 € for Universities.
- **Grants:** PhD students may apply for grants covering 90% registration fee (final payment 100 €). Applicants have to register and send the **Grant Application Form** and their **short CV** to the secretariat before 15th April 2012.
- Participants awarded with a grant will be notified on 1st May and finally confirmed after payment (15th May 2012).

COURSE SUMMARY

- Course language: English
- Number of participants: 24
- Total hours: 40 (theoretical and practicum)
- Practicum groups: 8
- Practicum devices and activities:
 - A01: Granular aerobic reactor at pilot-scale
 - A02: Anammox reactor
 - A03: Membrane biological reactor (MBR)
 - A04: Hybrid anaerobic MBR at pilot-scale
 - A05: Biofiltration of gaseous effluents
 - A06: Ozonation reactor at pilot-scale
 - A07: Adsorption plant with Granular Activated Carbon (GAC) at pilot-scale
 - A08: Recovery of phosphorus as struvite
 - A09: Identification of microbial populations

ORGANISATION

Coordinator:

Prof. Francisco Omil

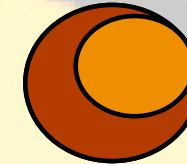
Group of Environmental Engineering and Bioprocesses
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SECRETARIAT

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NOVEDAR_Consolider (CSD2007-00055)
INNOTRAZA (CTQ2010-20240)



NOVEDAR_Consolider

3th Summerschool (2nd edition)

Innovative technologies for urban wastewater treatment plants

Short, intensive and highly specialised course, focussed on innovative technologies emerging nowadays for the treatment of municipal wastewaters

School of Engineering (ETSE)
Rúa Lope Gómez de Marzoa. Campus Sur

Santiago de Compostela (Spain)
28th June - 4th July 2012



Escola Técnica
Superior de
Enxeñaría



UNIVERSIDADE
DE SANTIAGO
DE COMPOSTELA

This short, intensive and highly specialised course is focussed on innovative technologies emerging nowadays for the treatment of municipal wastewater, such as membrane, granule and biofilm-based reactors; processes oriented to the removal of nitrogen, phosphorus and micropollutants; innovative processes for VOC and odour removal; recovery of resources from sewage; and new tools for the optimisation of sewage treatment plants such as life cycle analysis, ecotoxicology assays and microbial ecology characterisation.

The course is mainly oriented to PhD students who want to achieve a higher degree of specialisation in this field, but also to other students or professionals specifically interested in these topics and with a limited amount of time.

The course is organised by the Group of Environmental Engineering and Bioprocesses (GEEB) of the University of Santiago de Compostela (USC, Spain) and will be held at the School of Engineering (ETSE).

Facilities available include a pilot-plant hall with fully operative pilot-scale treatment plants (granular, membrane, hybrid, etc.), lab-scale devices, several wastewater laboratories, a water chemistry laboratory and a microbiology laboratory.

Didactical methods used in this course include:

- a) Lectures given by senior researchers
- b) Individual and group exercises in the classroom
- c) Discussion sessions
- d) Practical operation of pilot scale treatment plants
- e) A technical visit

Furthermore, a social programme has been designed to enhance the interaction between all participants (students, lecturers and collaborators) in the course.