UNIVERSITAT POLITÈCNICA DE VALÈNCIA

PRACTICAL COURSE OF WWTP MODELLING AND SIMULATION (ASM1)

At the end of this activity the attendees will be able to (Description of the activity objectives):

At the end of the course, the student will have obtain an assimilation of the IWA Activated Sludge Model Nº1 (ASM1), and practical skills in the management of free software Lynx ASM1 (developed by the group team in the Aula Bioindicación Gonzalo Cuesta). In addition, the student will have been able to evaluate the benefit / effort ratio offered by this kind of tools, based on the case studies presented and the own designs developed by the student during the practical exercise. So, the student will be qualified to learn how to diagnose the state of the process, to detect their limitations and explore the ideal strategies of operation in a great variety of scenarios.

Require Knowledge:

They are not necessary

Learning activity headed to:

Professionals specialized in the fields of operation, design or commissioning of WWTP.
Professionals and managers of industries with wastewater treatment plants.
Students and professionals interested in specializing in the field of modelling and simulation of WWTP.

Schedule:

1. FUNDAMENTAL ASPECTS. Presentation of the models. Advantages and limitations of mathematical modelling. Formulation. Organic matter removal. Organic matter and nitrogen removal.

2. FUNDAMENTALS OF ASM1. Decomposition of COD. Decomposition of Nitrogen. Monod kinetics. Constitution of the models.

3. ASM1 CONCEPTUAL MODEL. ORGANIC MATTER REMOVAL. Matrix format. Conceptual diagram. Stoichiometry. Kinetics.

4. ASM1 CONCEPTUAL MODEL. ORGANIC MATTER AND NITROGEN REMOVAL. Conceptual diagram. Stoichiometry. Kinetics.

5. CASE STUDY: IMPROVEMENT OF NITROGEN REMOVAL EFFICIENCY. Aims to overcome with the simulator. Description of the facility. Stage I. Design of study, collection of existing information. Stage II. Generation of the global mathematical model of the WWTP. Stage III. Calibration and validation of the model. Stage IV. Optimization of the operation.

6. LYNXASM1 STEP-BY-STEP TRAINING GUIDE. Main Screen Software. Characterization Options. ASM1 parameters introduction. Introduction of influent. Building the WWTP. Definition of reactor lines and flow distribution. Reactor volumes and oxygenation. connections between blocks. Definition of the return and waste activated sludge. Operation of the sludge line. Initial values in reactors. Simulation of the WWTP.

7. Practical exercise 1. Remodelling of an existing WWTP. Description of the existing plant. Influent characterization and scenarios to simulate. Considerations for the design. Design solution to the scenario 1. Low temperatures. Design solution to the scenario 2. High temperatures.

Other interesting information:

www.abgc.es

Condiciones generales

La acción formativa cumple las siguientes condiciones generales: http://www.cfp.upv.es/cond_gen?3

Organizing people:	
Responsible of activity	MANUEL AUGUSTO PULIDO VELÁZQUEZ
Director academic	ANDRÉS MIGUEL ZORNOZA ZORNOZA
Coordinator	HÉCTOR JOSÉ REY GOSÁLBEZ
General Information:	
Web address	www.abgc.es
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Course tipology	SPECIFIC TRAINING COURSE
Course Situation	FINISHED
Duration (Hours)	40 horas a distancia
Credits ECTS	4
Where and When:	
Where	INTERNET
When	INTERNET
Venue	Poliformat
Starting Date	18/03/19
Ending Date	14/04/19
Registration data:	
Matrícula desde	31/12/18
Early Registration From	13/12/18
Minimum number of attendees	2
Maximum number of attendees	20
Fee	200,00 euros
Special fees	200,00 € - Público en general

Speakers:

HORTELANO MARTIN, IRENE
NICOLÁS PÉREZ, FRANCISCO
REY GOSÁLBEZ, HÉCTOR JOSÉ
SÁNCHEZ FERNÁNDEZ, FRANCISCO
ZORNOZA ZORNOZA, ANDRÉS MIGUEL