5th Summer School
Model-based Design and Operation of Wastewater Treatment Plants

18th June – 22nd June 2012

tecnun Universidad de Navarra Escuela de Ingenieros

ceit k4 research alliance

NOVEDAR_Consolider

GOBIERNO DE ESPAÑA · MINISTERIO DE EDUCACIÓN Y CIENCIA

NOVEDAR_Consolider (CSD2007-00055)

DESCRIPTION

This course immerses the participants in the most advanced modelling and simulation tools for the wastewater treatment plants management.

The course combines theoretical sessions in the mornings with practical computer sessions during the afternoons. The last day a visit to Bilbao-Galindo WWTP is scheduled.

This course is addressed to:

- Engineering and consultancy companies
- Water authorities
- PhD or master students

REGISTRATION

- Fill in the registration form at www.novedar.com
- Fees: 1500€ for companies; 500€ for PhD students, including course stuff, lunches and the whole social programme
- Registration Deadline: June 6th

SOCIAL PROGRAM

- Farewell dinner (Thursday evening)

ORGANISATION

- Scientific Coordinators
  Prof. Eduardo Ayesa and Dr. Paloma Grau
- Technical Coordinator
  Tamara Fernandez

CONTACT

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MODEL BASED DESIGN AND OPERATION OF WASTEWATER TREATMENT PLANTS

PROGRAMME OF THE COURSE

		Monday (18th June)	Tuesday (19th June)	Wednesday (20th June)	Thursday (21th June)	Friday (22th June)
		Fundamentals and mathematical modelling of the DN process	**Model-based design and operation of the DN process**	**Influent characterization, model calibration and Automatic Control**	**Design and operation of sludge treatments and Integrated modelling**	**Technical Tour to Galindo (Bilbao) WWTP**
Theoretical Sessions	**09:00 - 09:15**	Welcome/Introduction (1)	Model-based design of WWTPs for carbon and nitrogen removal (3)	Influent characterization and models calibration in WWTPs (4)	Fundamentals on sludge digestion (6)	The Galindo facilities will be visited. During this visit, the usefulness of dynamic simulators and automatic controllers will be visualized in a full-scale plant.
	09:15 - 10:00	Fundamentals on organic matter and nitrogen removal in wastewaters (2)				
	10:00 - 11:00				Mathematical modelling of sludge digestion (7)	
	11:00 - 11:30	*Coffee break*	*Coffee break*	*Coffee break*	*Coffee break*	
	11:30 - 13:30	Mathematical modelling on activated sludge processes (1)	Optimum operation of WWTPs for carbon and nitrogen removal (1)	Introduction to automatic control strategies for secondary treatment processes (5)	Plant-Wide-Modelling approaches & Energy modelling (8)	
	13:30 - 15:00	*Lunch*	*Lunch*	*Lunch*	*Lunch*	
Practical Sessions	**15:00 - 18:00**	Introduction to the WEST 2011 platform.	Description of DN Plant layout (Denitrification – Nitrification) Simulation study: Model-based design of the DN process	Introduction to automatic controllers Description of DN Plant layout with controllers Simulation study: Model-based tuning of DN controllers	Simulation of a *water/sludge WWTP:* Optimum design and operation.	

(1) Prof. Eduardo Ayesa (Tecnun-CEIT)
(2) Dr. Luis Sancho (Tecnun-CEIT)
(3) Dr. Luis Larrea (Tecnun-CEIT)
(4) Sergio Beltrán (Tecnun-CEIT)
(5) Dr. Ion Irizar (Tecnun-CEIT)
(6) Dr. Enrique Aymerich (Tecnun-CEIT)
(7) Dr. Jaime Luis García de las Heras (Tecnun-CEIT)
(8) Dr. Paloma Grau (Tecnun-CEIT)

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