SUBJECT TEACHING GUIDE

M2124 - Supply and Sanitation Networks

Master's Degree in Environmental Engineering and Management

Academic year 2022-2023

1. IDENTIFYING DATA					
Degree	Master's Degree in Environmental Engineering and Management			Type and Year	Optional. Year 1
Faculty	School of civil Engineering				
Discipline	ENVIRONMENTAL TECHNOLOGIES				
Course unit title and code	M2124 - Supply and Sanitation Networks				
Number of ECTS credits allocated	3	Term		Semester based (2)	
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE
Name of lecturer	JAVIER TEMPRANO GONZALEZ
E-mail	javier.temprano@unican.es
Office	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 2. DESPACHO - Area de Tecnologías del Medio Ambiente (2033)
Other lecturers	

3.1 LEARNING OUTCOMES

- Students will be able to design the project, both supply and sanitation, of a small urban nucleus.
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Know and design various elements of the urban water cycle: catchments, pipes, storage tanks, flow measurement, distribution and sanitation networks, surface runoff retention tanks.
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To know the operation of computer aid programs for the design of networks. EPANET and SWMM, both from EPA and free.
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- Exposing a project written by them for a few minutes in public

4. OBJECTIVES

Obtain general knowledge of the design, project and planning of various infrastructures related to the cycle urban water.
Highlight the great importance of the aspects related to the quality of the water of the infrastructures related to the urban water cycle.
Make a first project of a supply of a small urban nucleus. Aspects related to the annexes of calculations.
Use and knowledge of widely used computer programs to help the designer

6. COURSE ORGANIZATION

CONTENTS	
1	Urban water cycle. Dotations, consumption per capita. Medium and peak flow rates. Pollutant loads. Equivalent inhabitants
2	Urban water cycle. Water storage. Measurement of water flows. Conductions
3	Supply networks. Calculation of branched networks. Practical exercises
4	Supply networks. EPANET: tutorial and exercises simple of branched networks. The case of chlorine at EPANET
5	Sanitation networks. Elements, types, formulations. Calculation of rain flows. Calculation of sections partially full. Spillway calculation.
6	Development of the project

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Test	Written exam	Yes	Yes	30,00
Written report of the project developed in class	Work	Yes	Yes	70,00
TOTAL				100,00

Observations

Observations for part-time students

The part-time student has to complete the project-type report and take the subject test. Class attendance is not mandatory, although it is highly recommended in weeks 3 and 4.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

TEJERO I., SUÁREZ J, JÁCOME A. y TEMPRANO J. (2004). "Ingeniería Sanitaria y Ambiental". Escuelas de Ingenieros de Caminos de La Coruña y Santander. ISBN: 84-89627-68-1