SUBJECT TEACHING GUIDE

G1445 - Fluid Mechanics

Degree in Civil Engineering
BILINGUAL UC-CU CIVIL ENGINEERING PROGRAM

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Degree in Civil Engineering BILINGUAL UC-CU CIVIL ENGINEERING PROGRAM			Type and Year	Compulsory. Year 2 Compulsory. Year 1
Faculty	School of civil Engineering				
Discipline	Obligatory Subjects FUNDAMENTALS OF HYDRAULIC ENGINEERING				
Course unit title and code	G1445 - Fluid Mechanics				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web					
Language of instruction	English		Mode of delivery	Face-to-face	

Department	DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE
Name of lecturer	MARIA EMILIA MAZA FERNANDEZ
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Other lecturers	

3.1 LEARNING OUTCOMES
- The student will acquire fundamental knowledge of fluid properties, fluid statics and fluid dynamics.
- The student will acquire knowledge of fluid analysis through the application of control volumes, as well as differential analysis. In addition, they will understand and know how to apply Bernoulli's equation to solve different hydraulic engineering problems.
- The student will acquire the knowledge to be able to solve flows in pipe systems as well as in open channels. In addition, they will receive basic training in turbulent processes and in the treatment of the boundary layers.

4. OBJECTIVES

Covers hydrostatics, the basic equations of incompressible fluid flow, potential flow and dynamic pressure forces, viscous flow and shear forces, steady pipe flow, turbulence, laminar and turbulence boundary layer and flows around obstacles.

6. COURSE ORGANIZATION

CONTENTS	
1	Fundamental aspects of fluid motion: 1. Fluid Properties 2. Fluid Statics 3. Fluid Kinematics
2	Basic analysis methods: 1. Control Volume Analysis 2. Bernoulli and Energy Equations 3. Differential Analysis
3	Applied principles: 1. Pipe flow 2. Open Channel Flow 3. Boundary layer and Turbulence

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Homework	Others	No	Yes	30,00
Preliminary Exam 1	Written exam	No	Yes	35,00
Preliminary Exam 2	Written exam	No	Yes	35,00
TOTAL				100,00

Observations

Observations for part-time students

Part-time students should complete the same assignments and should take the same exam as regular students. However, deadline extension will be considered for homeworks. Supplementary material will be provided in order to complete the course assignments.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

A Brief Introduction to Fluid Mechanics, 3rd Edition
Donald F. Young, Bruce R. Munson, Theodore H. Okiishi
ISBN: 0-471-45757-4
Publisher: John Wiley & Sons
Hardback
560 Pages
Published August 2003