COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Environment		
ACADEMIC UNIT	Department of Environment		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	**231KEY**	**SEMESTER**	**5**
COURSE TITLE	Fluid Mechanics		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	3	
Total credits		**6**

COURSE TYPE	Special background
PREREQUISITE COURSES:	-
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (Tutorials)
COURSE WEBSITE (URL)	http://www.env.aegean.gr/studies/undergraduate-degree/curriculum/fluid-mechanics/

(2) LEARNING OUTCOMES

Learning outcomes
Main learning outcomes of this fluid mechanics class are: • Understanding of basic principles of fluid mechanics • Develop the ability of recognizing and analyzing main flow characteristics • Develop the ability to apply the proper equations of state, in order to solve various fluid mechanics problems
General Competences
Adapting to new situations Decision-making Working independently Working in an interdisciplinary environment Project planning and management

(3) SYLLABUS

Introduction
Fluid Properties, Fluid Statics
Fluids in Motion
Extensive and Intensive Properties
Newtonian and Non-Newtonian fluids
Mass conservation- Continuity Equation-Examples
Momentum Principle -Examples
Energy Principle -Examples
Flow in Conduits
Surface resistance and Energy Losses from Fittings
Pumps and Turbines
Flow in Open Channels
Hydraulic Jump – Examples

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	
TEACHING METHODS	

Activity	*Semester workload*
Lectures	39
Study and analysis of bibliography	120
Course total	***159***

STUDENT PERFORMANCE EVALUATION	Language of evaluation: Greek Methods of evaluation: Short-answer questions 20% Open-ended questions 20% Problem solving 60%

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- *Αυλωνίτης, Σ. Α. & Αυλωνίτης, Δ. Α. 2006, «Μηχανική των Ρευστών», 4η έκδοση, Ιων, Αθήνα. ISBN 960411557-X*
- *Munson, Young & Okiishi's Μηχανική Ρευστών (Επιστημονική επιμέλεια: Υάκινθος Κυριάκος), 8η-Εκδοση, Εκδόσεις Τζιόλα, Αθήνα, ISBN 978-960-418-525-2*
- *Bird, R. B., Steward, W. E. & Lightfoot, E. N., 2001 "Transport Phenomena 2nd Edition", Wiley, New York. ISBN 0471410772*
- *Roberson, J. A. & Crowe, C. T., 1997 "Engineering Fluid Mechanics", Wiley, New York. ISBN 0471147354*
- *Fischer, H. B., List, E. J., Koh, R. C., Imberger, J., and Brooks, N. H., 1979, "Mixing in Inland and Coastal Waters", Academic Press, New York. ISBN 0122581504*

- Related academic journals: