ECTS

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM IN THE EUROPEAN UNION

(B) Course information in english

General course information:

Course title:	Natural and artificial open channels flows	Course code:		CE08-H10
Credits:	5	**Work load (hours):**		120
Course level:	Undergraduate ☑		Graduate ☐	
Course type:	Mandatory ☐		Selective ☑	
Course category:	Basic ☐		Orientation ☑	
Semester:	8th	**Hours per week:**		4 hours
Course objectives (capabilities pursued and learning results):				
The course objective is to familiarise the students with the hydraulic laws which concern the natural and artificial open channels. Also the course objective is to familiarize the students with the hydraulic computation, the design and the construction of hydraulic works in rivers.				
Prerequisites:				
Fluid Mechanics Hydraulics				

Instructor's data:

Name:	**Vasilis Kanakoudis**
Level:	Associate Professor
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Other tutors:	
Level:	
Tel. – email:	

Specific course information:

Week No.	Course contents	Hours	
		Course attendance	Preparation
1	Artificial Open Channels. Short introduction.	4	4
2-3	Hydraulic Jump. Energy loss. Calculation of its size. Applications	8	8
4-5	Gradient varied non uniform flow. Free surface profiles. Hydraulic Jump.Applications	8	8
6	Free water fall. Inflow-outflow in lakes/water basins. Special issues	4	

Week No.	Course contents	Hours	
		Course attendance	Preparation
7	Discharge measurement (methods, instruments, examples)	4	4
8	Laboratory exercise at the 5m. long lab channel.(Discharge Measurement, Calculation of the flow depth)	4	
9	Natural open channels. Characteristics-Types of flow in open channels. River mechanics	4	4
10	Watersheds	4	4
11	Sediment transport in rivers.	4	4
12	Study of control structures and sediment transport management works.	4	4
13	Design of hydraulic works in rivers.	4	4
14	Measurements of different river parameters.	4	

Additional hours for:			
Class project	Examinations	Preparation for examinations	Educational visit
20	3	20	

Suggested literature:
1. K.L. Katsifarakis, "Steady flow with free surface", Christodoulidis Eds., 2009
2. Vassilios D. Dermissis, "Introduction to river mechanics", Aristotle University of Thessaloniki, Thessaloniki 2000.
3. C. R. Thorne, Sediment transport in gravel-bed rivers, John Wiley and Sons Ltd, 1987.
4. Andre Robert, River Processes, Hodder Education, 2003.
5. Pierre Y. Julien. River Mechanics, Cambridge University Press, 2002.

Teaching method *(select and describe if necessary -* **weight***):*		
Teaching	☑	40%
Seminars	☐	..........%
Demonstrations	☐	..........%
Laboratory	☑	20%
Exercises	☑	40%
Visits at facilities	☐	..........%
Other *(describe):*	☐	..........%
Total		100%

Evaluation method *(select)-* **weight:**				
	written	*%*	*Oral*	*%*
Homework	☑	10	☐	
Class project	☑	40	☐	
Interim examination	☐		☐	
Final examinations	☑	50	☐	

Other *(describe):* …………………………	☐		☐	