Course information in english

General course information:

Course title:	Water Resources Systems and Water Supply Distribution Networks	**Course code:**	CE09-H05
Credits:	6	**Work load (hours):**	125
Course level:	Undergraduate ☒	Graduate ☐	
Course type:	Mandatory ☒	Selective ☐	
Course category:	Basic ☐	Orientation ☒	
Semester:	9	**Hours per week:**	4

Course objectives (capabilities pursued and learning results):

- Water resources systems analysis techniques (joint ones included)
- Water resources systems / water networks Performance Indicators
- Deterministic and Stochastic approaches
- Water resources systems management /simulation/optimization models (joint ones included)
- Tools and models

Prerequisites:

- Hydraulics
- Hydrology
- Groundwater Hydraulics
- Water supply & distribution networks
- Water Resources Management
- Statistics – Probability theory

Instructor's data:

Name:	**Vasilis Kanakoudis**
Level:	Professor
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Specific course information:

Week No.	Course contents	Hours	
		Course attendance	Preparation
1	Water resources systems management approaches (Worth living development). National / EU legislation (WFD 2000/60, N.L.3199/2003, P.D/ 51/2007). Water resources management under specific conditions (coastal, transnational, protected, vulnerable)	4	2
2	Introduction to systems analysis theory. Joint management techniques, Alternative paths (arcs, blocs), complete mixing assumption theory. Optimization techniques	4	2
3	Deterministic and Stochastic approaches. Water resources systems management /simulation/optimization models (joint ones included)	4	4
4	Decision Making process and tools (EDAMS, EDSS)	4	4
5	Water Resources Systems Evaluation. Reliability, Availability, Hazard, Risk analysis, Significance, Vulnerability	4	4
6	Life cycle analysis Repair or replace dilemma analysis	4	4
7-8	Water networks Performance Assessment/Indicators	8	4
9	Water Audit Tools. WB/PI Calc-UTH.	4	
10-11	Simulation Models. WaterCad	8	
12-13	Water resources systems Water Balance Estimation techniques & tools Supply & Demand management Costing and pricing technics regarding the urban water Full water cost recovery principal (direct cost, environmental cost, cost of the natural resource)	8	4
14	Integrated Methodology (stepwise)	4	4

Additional hours for:			
Class project	**Examinations**	**Preparation for examinations**	**Educational visit**
		33	

Suggested literature:
1. Notes & papers 2. G. Tsakiris, “Hydraulic Works, Planning & Management, Vol. I: Urban Hydraulic Works», Symmetria Eds., 2010 3. M. Mimikou, “Water Resources Technology” (in Greek), Papasotiriou eds., p.564 4. Kapur K. & L. Lamberson: *“Reliability in Engineering Designs”*, Wiley, NY, 1977

Teaching method *(select and describe if necessary* - **weight***):*		
Teaching	☒	50%
Seminars	☐	…….%
Demonstrations	☒	20%
Laboratory	☐	…….%
Exercises	☒	30%
Visits at facilities	☐	…….%
Other *(describe):* ……	☐	…….%
Total		100%

Evaluation method *(select)*- **weight:**				
	written	*%*	*Oral*	*%*
Homework	☐		☐	
Class project	☒	50%	☐	
Interim examination	☐		☐	
Final examinations	☒	50%	☐	
Other *(describe):* ……	☐		☐	