

## TEACHING DISCIPLINE: HYDROLOGY AND HYDROGEOLOGY (Specialization ENVIRONMENTAL ENGINEERING, II th Year of study, I th Semester)

**Credit value (ECTS): 3**

**Course category: mandatory**

**Course holder:** Assoc.Prof.Ph.D.eng Nicolae Marcoie

### Discipline objectives (course and practical works)

- ) Explaining the mechanisms of processes and effects of anthropogenic or natural origin that determine and influence environmental pollution.
- ) Managing and solving specific environmental problems for sustainable development
- ) Understanding the main hydrological and hydrogeological processes, the processes and phenomena associated with the water circuit at all stages of development.
- ) Formation of skills for analysis and interpretation of hydrological and hydrogeological data and information for the formulation of concrete arguments and approaches.
- ) Manifestation of one's own attitude, reasoned and responsible, regarding the problems encountered in the process of hydrological and hydrogeological monitoring.
- ) Solving hydrological and hydrogeological problems in the context of environmental protection.
- ) Establishing links, parallels, analogies and antitheses between the problems imposed by the study of the hydrological balance.
- ) Deepening the methods, techniques and research procedures used in hydrology and hydrogeology.

### Contents (syllabus)

Course (chapters/subchapters)
1. Introduction
2. Hydrography
3. Hydrometry
4. Elements of atmospheric physics
5. Urban hydrology

Practical works
The river basin. Hydrographic network
How to represent the levels
How to represent liquid flows
Flow-level relationship; extrapolation of the limnimetric key
Hydrometry of velocities and flows in rivers
Hydrometry of solid flows in rivers
Average rainfall in the pool. Torrential rains; intensity-frequency curves; surface runoff assessment
Preparation of intensity curves duration frequency
Measurement of levels and flows in urban areas

### Bibliography

1. Craciun I., Giurma I., Giurma-Handley C-R., Boboc V., 2011 - Evaluating the Climatic Changes in the Hydrological Flow Regime of the Moldavian Areas, Environmental Engineering and Management Journal, Vol. 10/no.12, 1983-1986
2. Craciun I., Giurma I., Giurma-Handley C-R., 2009 - Quality Risk Evaluation of the Groundwater Resources on the Moldavian Area, Environmental Engineering and Management Journal, Vol. 8/2009, no.3, 391-395.

3. Craciun I., Drobot R., 2001 - Wasserqualitätsanalyse der StauesenimBahluibeckendurchMathematikmodellierung, Buletin I.P. Ia i, Tomul XLVII(LI), Fasc. 1-4 (II), Hidrotehnica, vol. II, (Ses t. Hidrotehnica XXI, III-rd Section "Environmental Engineering", 22-24 nov., pg.13-16.
4. Craciun I., 1997 - Gestion des eaux de surface du bassin versant Bahlui, utilisant le modelage mathématique, Buletin I.P. Ia i, Tom XLIII(XLVII), Fasc.1-4, VII, Hidrotehnica, pg.75-84.
5. Craciun I., Giurma I., Giurma-Handley C-R., Telisca M., 2009 - Integrated quantitative and qualitative monitoring system of water resources, VIth Int. Conf. on the Management of Technological Changes, Sept. 3-5, 2009, Alexandroupolis, Greece, Book 2, pg. 53-56.
6. Craciun I., Giurma I., Giurma-Handley C-R., Antohi C-M., 2009 - Innovative monitoring solutions of extremelly hydro-meteorological phenomena, VIth Int. Conf. on the Management of Technological Changes, Sept. 3-5, 2009, Alexandroupolis, Greece,Book 2,pg.665-667.
7. Cretescu I., Craciun I., Benchea R.E., Kovacs Z., Iavorschi A., Sontea V., Macoveanu M., 2013 - Development of an Expert System for Surface Water Quality Monitoring în the Context of Sustainable Management of Water Resources, Env. Eng. and Management J., 12(8), 1721-1734.
8. Diaconu P., 1998 - Aplicatii de hidrometrie , Ed. HGA Bucuresti.
9. Drobot R., Serban P., 1999 - Aplicatii de hidrologie și gospodărirea apelor, Ed. HGA Bucuresti.
10. Giurma I., Craciun I., Giurma-Handley R-C., 2001 - Hidrologie i hidrogeologie- aplicatii, Ed. "Gh.Asachi", Iasi.
11. Giurma I., 2004 - Hidrologie speciala, Ed. Politehnum, Ia i.
12. Giurma I., 1997 - Colmatarea lacurilor de acumulare, S\_JEP 09781/95, Gestion et Protection de la Ressource en eau, H.G.A. Bucure ti.
13. Giurma I., Craciun I., Giurma C-R., 2006 - Hidrologie, Ed. Politehnum, Ia i.

## Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Course	Exam	50%
	presence	
Practical works	Oral answer	20%
	Laboratory notebook	30%

## Contact

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