Level: master

Course title: Mechanics of environmental fluids

Status: obligatory

ECTS: 9

Requirements: Micrometeorology

Learning objectives

Providing knowledge in the mechanics of natural flows of air and water on the Earth, especially those that affect the quality of the environment. Processes that are discussed in this course include spatial scale from millimetres to kilometres, while the time scale ranging from seconds to years.

Learning outcomes

Upon completion of the course, students are supposed to have:

- General abilities of searching and using literature; analysis of different solutions and selecting the most appropriate ones;
- Subject specific abilities: knowledge on processes in fluid mechanics in the earthatmosphere system and understanding of their impact on the environment.

Syllabus

Theoretical instruction

Introduction. Physical principles. Differential equations. Waves. Instabilities. Mixing. Convection. Turbulence. Jet. Thermals. Boundary layers. Atmospheric boundary layer . Troposphere. Water flows in wet soils and ground waters.

River flows. Lakes and oceans. Inconsistencies in treating processes on the environmental surfaces.

Practical instruction

Weekly teaching load				Other:
Lectures:	Exercises:	Other forms of	Student research:	
3	1	teaching: 1		