Level: bachelor

Course title: Micrometeorology

Status: obligatory

ECTS: 4

Requirements: none

Learning objectives

Students should get fundamental knowledge about planetary boundary layer and turbulence. Main goal of this course is to make students familiar with mathematical formalism of boundary layer, origin and characteristics of turbulence and some basic concepts of closuring techniques.

Learning outcomes

Expert with academic education with knowledge in micrometeorological processes of planetary boundary layer. In addition, one has skills to use known solutions for new problems and to understand mathematical and numerical methods in micrometeorology. Students are qualified to work in various scientific institutes, agricultural institutes and institutes for monitoring and environmental protection. In addition, students have the ability for independent work and further improvements.

Syllabus

Theoretical instruction

Laminar boundary layer. Introduction. Definition of boundary layer. Basic equations.

Turbulence of boundary layer. Origin of turbulence. Basic equations of turbulent flow. Flow above surface. Law of wall. Stratified fluid. Convective layer. Stable boundary layer.

Modelling of turbulence flow. Introduction. Closuring problems and first solutions. Closuring techniques second and third order. Realizability problem. Non local closuring.

Practical instruction:

Exercises

Weekly teaching load				Other:
Lectures: 2	Exercises: 1	Other forms of teaching:	Student research: 1	