Soil Physics with Python

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First week

Date	Detail
Day 1	
8.00-8.30	Registration Location:
8.45-9.00	Opening Ceremony Welcome address
9.00-10.40	Fundamentals of soil physical property, mass, density, volume, soil water content, gas phase.
10.40 – 10.55	Refreshment
10.55 – 12.00	Textural and structural properties and sedimentation theory.
12.00-13.00	Lunch
13.00-15.00	Computer exercises Using Python to solve simple problems in soil physics. Sedimentation computaion
15.00-15.15	Refreshment
15.15-16.30	Computer exercises Using Python to solve simple problems in soil physics. Sedimentation computaion (continue)
Day 2	
9.00-10.40	Soil gas and gas flow. Gas properties.
10.40 – 10.55	Refreshment
10.55 – 12.00	Gas diffusion (continue). Numerical solution.
12.00-13.00	Lunch
13.00-15.00	Computer exercises. Gas diffusion

Date	Detail
15.00-15.15	Refreshment
15.15-16.30	Computer exercises. Gas diffusion (continue)
Day 3	
9.00-10.40	Soil temperature and heat flow. Thermal properties.
10.40 – 10.55	Refreshment
10.55 – 12.00	Soil temperature and heat flow. Thermal properties (continue).
12.00-13.00	Lunch
13.00-15.00	Computer exercises. Soil temperature and estimation of thermal conductivity.
15.00-15.15	Refreshment
15.15-16.30	Computer exercises. Soil temperature and estimation of thermal conductivity (continue).
Day 4	
9.00-10.40	Soil liquid phase and Soil-Water Interactions
10.40 – 10.55	Refreshment
10.55 – 12.00	Soil liquid phase and Soil-Water Interactions
12.00-13.00	Lunch
13.00-15.00	Computer exercises. Time domain reflectometry
15.00-15.15	Refreshment
15.15-16.30	Computer exercises. (continue)

Second week

Date	Detail
Day 1	
9.00-10.40	Water in soil. Soil and water interactions. Soil water retention and hydraulic conductivity curve.

Date	Detail
10.40 – 10.55	Refreshment
10.55 – 12.00	Water potential and water movement in saturated soils. Soil water budget.
12.00-13.00	Lunch
13.00-15.00	Computer exercises. Fitting models to water retention curves.
15.00-15.15	Refreshment
15.15-16.30	Computation of water movement in saturated and unsaturated soils. (continue)
Day 2	
9.00-10.40	Water flow in three dimensions. Governing equations.
10.40 – 10.55	Refreshment
10.55 – 12.00	Water flow in three dimensions. Governing equations.
12.00-13.00	Lunch
13.00-15.00	Computer exercises, compute water flow
15.00-15.15	Refreshment
15.15-16.30	Computer exercises, compute water flow (continue).
Day 3	
9.00-10.40	Solute transport. Mass flow, diffusion.
10.40 – 10.55	Refreshment
10.55 – 12.00	Solute transport. Hydrodynamic dispersion.
12.00-13.00	Lunch
13.00-15.00	Computer exercises.
15.00-15.15	Refreshment
15.15-16.30	Computer exercises (continue).
Day 4	
9.00-10.40	Soil energy budget. Fluxes at the earth-atmosphere interface.

Date	Detail
10.40 – 10.55	Refreshment
10.55 – 12.00	Soil energy budget. Fluxes at the earth-atmosphere interface (continue).
12.00-13.00	Lunch
13.00-15.00	Computer exercises, compute the soil energy budget.
15.00-15.15	Refreshment
15.15-16.30	Computer exercises, compute the soil energy budget. (continue)

The fifth day of each week is dedicated to support students in invidual projects, meetings with students one to one and to answer questions about the subjects presented during the week.