האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

field method in groundwater hydrology - 68804

Last update 14-02-2021

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Hydrology and Water Resources

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Dr. Yonatan Ganot
Dr. Noam Dvory

Coordinator Email: yonatan.ganot@mail.huji.ac.il

Coordinator Office Hours: Coordination with the student

Teaching Staff:
Dr. Jonathan Ganot,
Dr. Noam Dvory

Course/Module description:
The course teaches subjects related to the field work of groundwater hydrologists in the context of planning and execution of groundwater projects. The topics covered include field methods in the deep unsaturated-zone, and in groundwater observation and production wells. The course teaches monitoring and sampling of the unsaturated-zone, infiltration tests, drilling methods, the concepts of well design and the field hydrologist supervision work during drilling. In addition, the course includes studying pumping methods, sampling and groundwater level measurement. These methods are demonstrated in the field. Another significant subject taught in the course is performing and interpreting pumping tests for analyzing aquifer characteristics. The subject is taught in the classroom as well as in the field, where a pumping test is performed during a field trip.

Course/Module aims:
To study field practices in sub-surface hydrology including monitoring and sampling of the unsaturated-zone, drilling methods, wells and boreholes design, sampling and pumping methods, hydrological pumping tests.

Learning outcomes - On successful completion of this module, students should be able to:
- Knowing how to sample soil and water from the unsaturated-zone, and groundwater from observation wells.
- Estimating water quality using different parameters measured in the field.
- Estimating the hydraulic conductivity using various methods.
- Understanding what is a well/borehole, drilling methods, inducing a visit to drilling sites and understanding of the hydrologic supervision work.
- Knowing how to read a well lithological and technical log.
- Knowing the principles of design of a new well.
- Understanding what is a pumping test and how to perform it in the field, including interpretation of the pumping test data.
- To be exposed to "real world" hydrological projects of groundwater and the aspects of design and field work related to example projects.

Attendance requirements(%):
100%

Teaching arrangement and method of instruction: A concentrated day of lectures

and exercises. 2 days of field trips.

Course/Module Content:

1. Monitoring and sampling methods of the deep unsaturated-zone
2. Drilling methods, design of wells and boreholes and well supervision
3. Methods of sampling and pumping in wells
4. Pumping tests

Required Reading:

All required reading material can be found on moodle

Additional Reading Material:

None

Grading Scheme:

Additional information:

None