

Modul Nr.	Credits	Workload	Semester	Frequency	Duration
SE-CO-15	8 CP	240 h	2	Yearly (SS)	1 Semester
<b>Courses</b>		<b>Contact time</b>	<b>Self-study</b>		<b>Group size</b>
a) Tracers in Hydrogeology		3 h/week	75 h		40 Students
b) Hydrogeological Field Camp		3 h/week	75 h		
<b>Hydrogeological Methods</b>					
<b>Learning outcomes</b>					
At the end of the module, participants will					
<ul style="list-style-type: none"> <li>• be able to perform various hydrogeological field experiments and analyze the results,</li> <li>• understand the concept of applying organic substances as Tracers for groundwater flow,</li> <li>• plan and execute tracer tests, use field and laboratory equipment for tracer detection, process and analyze the tracer test results,</li> <li>• write a scientific report,</li> <li>• communicate with water- and environmental authorities and</li> <li>• transfer theoretical knowledge to practical applications.</li> </ul>					
<b>Content</b>					
a) Tracers in Hydrogeology					
Basics concepts, terms and methods in tracer hydrology: different kind of tracers, their chemical and hydrodynamical properties, planning and performance of the tracer tests under real world conditions: tracer injection, sampling, analytical detection. Moreover, the hydrogeological interpretation of the results, calculation of hydrodynamic parameters as well as the use of computer programs will be trained and documented by writing a report.					
b) Hydrogeological Field Camp					
The most important hydrogeological Field methods will be used to evaluate and plan the water supply well: pumping tests, infiltration tests, run of measurements extraction of groundwater and petrochemical sampling determination of petrochemical and physical groundwater parameters, use of hydrochemical analyses in the field, shallow drilling, hydrogeological and engineering geology goal characterization of the soil profile in boreholes, measuring of the groundwater level and plotting of groundwater contour maps. All the data of the performed experiments are documented and interpreted in a written report.					
<b>Teaching methods / Language</b>					
a) field exercise (5 days, 45h) / English					
b) Lecture (1h) / Exercise (2h) / English					
<b>Mode of assessment</b>					
written report (10h)					
<b>Requirement for the award of credit points</b>					
active participation in the field exercises and evaluated written report					

<p><b>Module applicability</b> (in other study programs)</p> <p>Master Geosciences</p>
<p><b>Weight of the mark for the final score</b></p> <p>6.7 %</p>
<p><b>Module coordinator and lecturer(s)</b></p> <p>Prof. Dr. S. Wohnlich (coordinator), Dr. Andre Banning</p>
<p><b>Further information</b></p> <p>relevant literature and specific study material will be supplied at the beginning of the lectures.</p>