Module title	**Water Management for Households, Industry and Agriculture**
Code	E6
Degree Programme	Master of Science in Life Sciences
Group	Environment
Workload	3 ECTS (90 student working hours: 42 lessons contact = 32 h; 58 h self-study)
Module Coordinator	**Name**: Christoph Hugi **Phone**: +41 61 228 55 84 **Email**: christoph.hugi@fhnw.ch **Address**: FHNW Campus Muttenz, Hofackerstrasse 30, CH-4132 Muttenz
Lecturers	• Dirk Hengevoss, FHNW-HLS • Christoph Hugi, FHNW-HLS • Maryna Peter, FHNW-HLS • Thomas Gross, FHNW-HLS
Entry requirements	Basic knowledge of environmental technologies and management. Basic knowledge about water resources and environmental quality aspects (Blanc 2014). Documents covering these aspects will be made available on Moodle.
Learning outcomes and competences	After completing the module, students will be able to: • explain the relationships between water quality aspects and human health as well as environmental quality. • apply basic methods to describe and assess water resources and their utilization for main sectors (household/industry/agriculture) and environmental needs. • apply methods in the different phases of managing the water cycle to enable efficient and effective utilization and conservation of water resources.
Module contents	• Characteristics of water resources: precipitation, surface water, and groundwater • Status and exploitation of water resources (quantitative and qualitative aspects) • Water abstraction, treatment, and distribution systems for the different sectors (household/industry/agriculture) • Water use/reuse/discharge and challenges in different sectors (household/industry/agriculture) • Water demand and supply management • Water distribution and water loss reduction • Monitoring and pricing of water use • Water resources protection • Water quality health and environmental impacts • Total water cycle management / integrated water resources management • Student seminar
Teaching / learning methods	The module will be a mix of project-/problem-based lectures, tutorials and group work leading to a seminar presentation, and several practical exercises on the water topics covered in the course (quantity and quality).
Assessment of learning outcome	1. Group writing assignment and seminar presentation during the course (40%) 2. Individual assignments during the course (60%)
Format	7-weeks

Timing of the module	Spring semester, CW 16-22
Venue	Mix of online and on-site lectures (in Olten)
Bibliography	• BAFU about water resources management: Water resource management (admin.ch) • Blanc P (2014) Water in Switzerland – an overview. Swiss Academies of Arts and Sciences • Holden JA (2013) Water Resources: An Integrated Approach. Taylor & Francis. ISBN-139780415602822 • The United Nations World Water Development Report 2025, Mountains and glaciers: water towers - UNESCO Digital Library • The United Nations world water development report 2020: water and climate change - UNESCO Digital Library • Federal Office of Public Health and Federal Office for the Environment: Reporting for Switzerland under the Protocol on Water and Health • UNECE: The Protocol on Water and Health
Language	English
Links to other modules	Links with E3 “Sustainable Natural Resource Management”, GIS modules at HES-SO and BFH.
Comments	-
Last Update	25.09.2025