

Module Compendium *

Master Programme
Hydro Science and Engineering

Effective since October 2025

* This is no legally binding document. Only the German module descriptions are legally binding.

Module Number	Module Name	Professor in Charge
MHSE02	Climatology and Hydrology	Prof. Mauder
Contents and qualification aims	The module transports fundamentals on basic processes in the atmosphere and hydrosphere. Energy budget and water budget are physically analysed including radiation, precipitation, evapotranspiration, surface and subsurface runoff as well as relevant water and energy storages. The climate of the boundary layer is derived from site characteristics as well as radiation, energy and water balances. The boundary layer climate of several land use types is introduced exemplarily. Another main focus is the macro climate and its variability. The students critically analyse meteorological and hydrological information (data, forecasts and consulting) and are able to apply their knowledge for water supply management tasks like development, dimensioning, and management. The students have available the proficiency of relevant processes in atmosphere and hydrosphere, as well as of methods of observation and modelling. This implies basic principles, and estimation technologies for all components of the water cycle.	
Module character	4 hours of lectures per week	
Prerequisite of attendance	Basic knowledge in physics and mathematics	
Applicability	The module is compulsory for the Master Course Hydro Science and Engineering.	
Prerequisite to achieve credit points	Having passed the module exam. The module exam consists of 2 written examinations (90 minutes each).	
Credit points and grades	The module earns 5 cr. The average of the grades for the examinations equals the module grade.	
Frequency of the module	The module is offered annually in winter term.	
Work load	The work load is 150 hours.	
Duration of the module	The module takes one term.	