Surface water and groundwater flow dynamics
In this module the fundamental aspects that form the essential knowledge and understanding for water flow in surface and groundwater systems, sediment transport, and hydraulic engineering applications are covered. Students will learn to describe the main concepts of steady/unsteady and uniform/non-uniform flow and describe the principles and basic equations of water flow and how to apply them to various practical situations. The principles and equations of surface flow routing and flood wave propagation will be discussed. In this module, students will analyse: steady natural groundwater flow processes in aquifers; steady groundwater flow to wells in aquifers and compute aquifer parameters from pumping test data; transient natural groundwater flow in unconfined and confined aquifers; and, transient groundwater flow to wells in aquifers and compute aquifer parameters from pumping test data.