



# 1. General information about course

## **Title of the course**

- Water (resource, usage, risk, risk management)

## **Professor:**

- Suad Špago

## **Institution:**

- UNMO

## **E-mail**

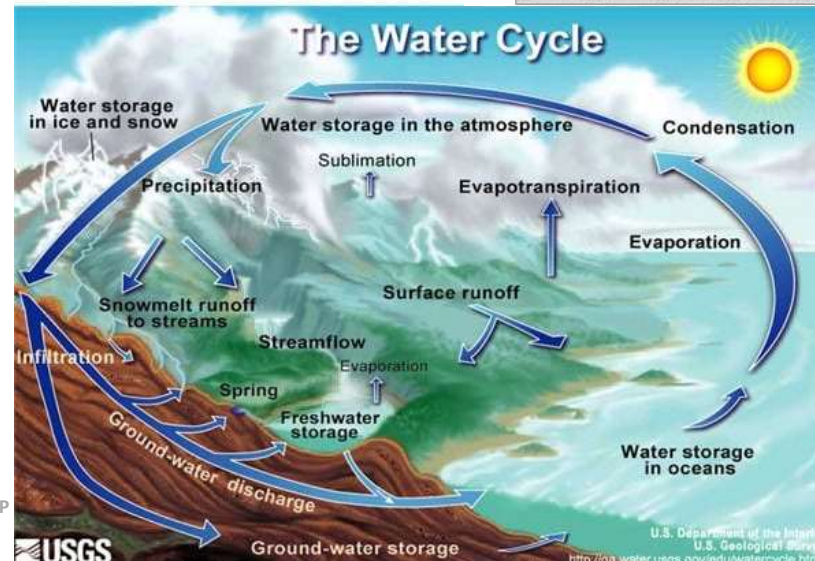
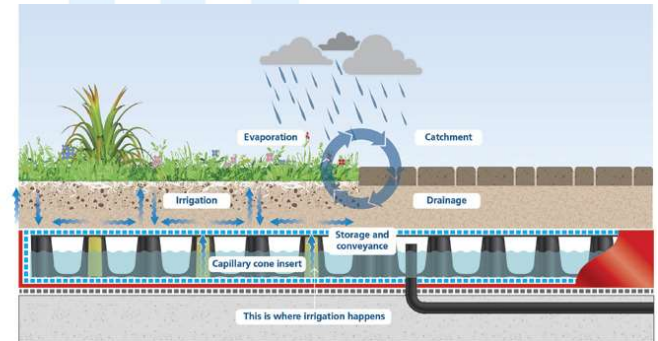
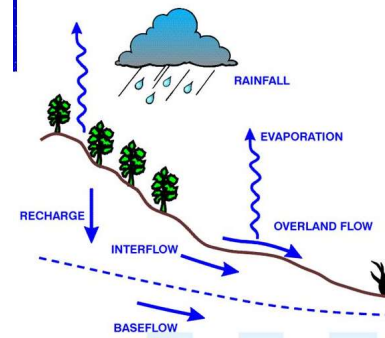
- [suad.spago@unmo.ba](mailto:suad.spago@unmo.ba)



## 2. Description of the course

1. Rainfall-runoff modeling, hydraulic modeling
2. Drainage design in urban environments
3. Environmental hydrology and surface water impacts assessments
4. Flood risk assessments and mitigation planning

Modelling the rainfall-runoff process





## 3. Target group and prerequisites

### **Target group/Learners profile**

- Students of the II cycle - Faculty of civil engineering and/or mechanical engineering
- civil engineers, mechanical engineering, architects and technicians working at public or private communal sector.

### **Prerequisites (required pre-knowledge and experiences)**

- Basic knowledge on communal systems and all its parts.



## 4. Learning outcomes

- The course introduces student to the various aspects of risk and reliability in both water quantity and quality problems. Traditionally, risk events are measured by two main criteria: impact and probability of occurrence. However, some of the risks associated with water resource management may contain high expected costs and be beyond the control of human society. Therefore, an additional criterion is proposed for the assessment of risks - the controllability.
- The topics covered include uncertainty analysis of water quantity and quality data, stochastic simulation of hydrosystems, decision theory under uncertainty and case studies. Methods for risk analysis of extremes in hydrology, groundwater clean-up, river and coastal pollution as well as total risk management are presented.



## 5. Training and learning methods

- Reading materials (given to students)
- Prepared group tasks - Individual and team research (development of learning through practice as well as critical thinking, research and managing data skills) – tasks will be prepared and groups created based on student's professional background. Work will be supervised by the professor.
- Outcomes of the course: group of students (maximum three per group) will write a project along with power point presentation and present it at final presentation in front of all class.