COURSE SYLLABUS SEMESTER

Name of Course	***Water Resources Management***
Course Code	***MSB430AN***
Allotment of Hours per Week	**2/0/0**
Number of Credits	**2**
Program	**Civil Engineering, Environmental Engineering**
Evaluation	**-**
Semester	**2025-2026 Spring**
Prerequisites	**-**
Department	**Institute of Engineering and Smart Technologies** **Department of Environmental Eng.**
Instructor	**Erno Dittrich, PhD assistant lecturer**

INTRODUCTION, GENERAL COURSE DESCRIPTION

The course is designed to introduce students of Civil Engineering to the objectives of water resources management, based on brief history of the EU. The tasks, methods and tools of water management are covered in the course with Hungarian specialities of water management.

LEARNING OBJECTIVES

Methodology:

Types and tasks of hydraulic engineering structures with the following topics: Climate change and water management. EU Water Directive. Water quality problems, and solutions. Watershed management of lowland and hilly areas. Regulation of lakes and rivers. Reservoirs and storage. Flood control and land drainage. Water power development. Water intake and pumping stations. Small hydraulic engineering structures. Characteristic environmental impacts of hydraulic engineering structures.
The following physical processes and principles are described: the water balance equation, precipitation and its measurements, areal averages, interception, infiltration, evaporation, runoff, unit hydrograph theory, river morphology, hydrology of lakes, groundwater.

Schedule:

Week of term	Topic of the lecture
1st	Cancelled
2nd	Basics I.
3rd	***Basics and EU Water Directive***
4th	Water quality problems I.
5th	Water quality problems II.
6th	Climate change and water management I.

7th	Climate change and water management II
8th	Regulation of lakes and rivers. Reservoirs and storage. Flood control and land drainage. Inland navigation. Water power development. I.
9th	Spring (Easter) Holiday
10th	Regulation of lakes and rivers. Reservoirs and storage. Flood control and land drainage. Water power development. II.
11th	Watershed management of lowland and hilly areas I.
12th	Watershed management of lowland and hilly areas II.
13th	Basics of Hydrology
14th	*Summary*

ATTENDANCE AND GRADING

Attendance:

Attending all lectures is highly recommended. Minimum 70% attending is demand.

Grading:

Need to make homwerks in groups untill deadline. Teacher will give mark for each homwork. The grade will be calculated from tha average of the homework marks. Each homework need to be graded with 2 minimally.

READINGS AND REFERENCE MATERIALS

RECOMMENDED READINGS COULD BE FIND AT THE AND OF EACH POWERPOINT PRESENTATION.

Some literature:

- Loucks, Daniel P., van Beek, Eelco, Stedinger, Jery R., Dijkman, Jozef P.M.,Villars, Monique T.Water: Resources Systems Planning and Management: An Introduction to Methods, Models and Applications ISBN: 9231039989
- L. Lenton, Mike Muller: Integrated Water Resources Management in Practice: Better Water Management for Development ISBN: 9781844076499
- Integrated Urban Water Management int he City of the Future (2011) Kiadó: ICLEI European Secretaria. ISBN: 978-3-943107-08-1 (PDF) ISBN: 978-3-943107-02-9 (CD ROM)
- Correlje, A.F.et al(2008): Every Drop Counts-Environmentally Sound Technologies for Urban and Domestic Water Use Efficiency. ed.: Schuetze ,T.kiadó: TU Delft. ISBN: 978-92-807-2861-3