

I. Subject Specification**1. Basic Data***1.1 Title***INTEGRATED WATER MANAGEMENT***1.2 Code***BMEEOVVMSFIN10-00***1.3 Type*

Module with associated contact hours

1.4 Contact hours

Type	Hours/week / (days)
Lecture	2

1.5 Evaluation

Midterm grade

1.6 Credits

3

1.7 Coordinator

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academic rank	Assistant professor
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1.8 Department

Department of Hydraulic and Water Resources Engineering

1.9 Websiteepito.bme.hu<https://edu.epito.bme.hu/course/view.php?id=5005>*1.10 Language of instruction*

hungarian

1.11 Curriculum requirements

Recommended elective in the Specialization in Water and Hydro-Environmental Engineering (MSc) programme

*1.12 Prerequisites**1.13 Effective date*

1 September 2025

2. Objectives and learning outcomes

2.1 Objectives

The course aims to integrate the environmental, economic and social aspects in operational Water Management. The lectures concentrate mostly on providing Master Degree level information on targeting sustainable water managerial aims. The students will study the basic principles and methods of integrated water management, the roles of economic analysis of water uses and the risks related to mitigate the harmful impacts of waters. During the semester several best practices will be used as illustrations to the lecture materials. Following a short introduction of the basic terms and theories of the integrated water managerial practices, the needs for the integrated approach, examples will be discussed concerning water managerial planning aiming at reaching economic and social goals. Emphasis will be on cost-recovery and cost-benefit methods.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. Knowledge of basics terms, principles and methods of integrated water management. 2. Knowledge of the combined basic terms, principles and methods of integrated water management and water economics. 3. Knowledge of the most important challenges of national and international water management issues and the best practices to tackle them. 4. Knowledge of the water managerial methods in line with the EU Water Framework Directive and beyond the EU Water Framework Directive 5. Knowledge of the sustainable development goals and opportunities related to water management. 6. Knowledge of the analytical methods of water economics. 7. Knowledge of the methods for cost-benefit analyses in water management. 8. Knowledge of the planning and implementation according to the Regional policies.

B. Skills

1. Understand the basic principles of integrated water management. 2. Capable for integrated water management planning with understanding the sustainable development goals and the international best practices with integrated overview. 3. Capable of participation in integrated water management planning according to the Water Framework Directive. 4. Capable to carry out water managerial analysis and cooperation with partners carrying out cost-recovery, cost-benefit and cost-efficiency analyses. 5. Capable to express well structured professional viewpoint in the field of the integrated water management. 6. Independently capable to implement development projects within own field of specialization and under supervision can contribute substantially to more complicated design/development projects. 7. Capable to evaluate the discussed case studies and able to make suggestions.

C. Attitudes

1. During the learning process cooperates with the lecturer. 2. May deepen the knowledge base with persistent information gathering. 3. Open to use up-to-date information technologies. 4. Aims at solving problems exactly and without errors

D. Autonomy and Responsibility

1. Independently carries out the water managerial planning tasks and problem solving based on given data sources. 2. Open to consider substantiated critical comments. 3. System-based approach to problem solving. 4. Responsible cooperation with economists carrying out the cost-benefit analyses.

2.3 Methods

Lectures about the theoretical basics, open discussions, tasks for independent planning, personal consultations, communications in writing and orally.

2.4 Course outline

1. The basis of the integrated water management. Why is it "integrated" and why "water catchment"? 2. Integrated water management vs. EU Water Framework Directive. 3. Water safety. 4. Tony Allan's virtual water concept. 5. International water resources management. 6. Sustainable waterway planning. 7. Sustainable hydropower development. 8. Microeconomy short overview. 9. Economic aspects of Water Framework Directive. 10. Environmental economy. 11. Regional policies – strategic planning. Water management objectives. 12. Regional policies – strategic planning and implementation. 13. Water management projects – financial and economic analysis. 14. Case studies.

The above programme is tentative and subject to changes due to calendar variations and other reasons specific to

the actual semester. Consult the effective detailed course schedule of the course on the subject website.

2.5 Study materials

a) Textbook 1. Global Water Partnership. Integrated water resources management in Central and eastern Europe. Technical Focus Paper 2015. b) Downloadable materials: 1. Presentation of the lectures

2.6 Other information

The course also includes a field trip.

2.7 Consultation

The instructors are available for consultation during their office hours, as advertised on the department website at the beginning of the semester.

This Subject Datasheet is valid for:

II. Subject requirements**Assessment and evaluation of the learning outcomes***3.1 General rules*

The assessment of the learning outcomes specified in clause 2.2. above and the evaluation of student performance occurs via tests and homework assignments.

3.2 Assessment methods

Assessment Name (Type)	Code	Assessed Learning Outcomes
Midterm test	MT	A.1-A.8, B.1-B.3
Homework	HW	A.1-A.8, B.4-B.7, C.1-C.4, D.1-D.4.

The dates of deadlines of assignments/homework can be found in the detailed course schedule on the subject's website.

3.3 Evaluation system

Code	Weight
MT	50%
HW	50%
Total	100%

3.4 Requirements and validity of signature

No signature can be achieved.

3.5 Grading system

Grade	Score (P)
excellent (5)	$85 \leq P$
good (4)	$72 \leq P < 85\%$
satisfactory (3)	$60 \leq P < 72\%$
pass (2)	$50 \leq P < 60\%$
fail (1)	$P < 50\%$

3.6 Retake and repeat

1. After the fee payment described in the Regulations, homework can be submitted with a delay until the deadline described in the Detailed course schedule. 2. The submitted and accepted homework can be corrected without fee until the deadline described in point 1. 3. The midterm tests can be retaken at the time and place specified in the Detailed course schedule. This first retake is free regardless of your previous score, i.e., you can also retake in order to improve the score of a passed midterm test. In any case the new score overwrites the previous. 4. If you cannot pass the subject (obtain a final grade higher than 1) with the retake in clause (3) then you can try to improve one failed midterm test a second time. This second retake is not free, however: you must pay the due fees according to the regulations. The time and place of the second retake is also specified in the Detailed course schedule.

3.7 Estimated workload

Activity	Hours/Semester
contact hours	14x2=28
preparation for the test	24
preparation of the homework	24
home studying of the written material	14

3.8 Effective date

1 September 2025

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