Reconstruction of public water utility systems - BMEEOVKMV64

I. Subject Specification

1. Basic Data

1.1 Title

Reconstruction of public water utility systems

1.2 Code

BMEEOVKMV64

1.3 Type

Module with associated contact hours

1.4 Contact hours

Type	Hours/week / (days)
Lecture	28

1.5 Evaluation

Midterm grade

1.6 Credits

3

1.7 Coordinator

name	Dr. Fülöp Roland
academic rank	Associate professor
email	fulop.roland@emk.bme.hu

1.8 Department

Department of Sanitary and Environmental Engineering

1.9 Website

https://epito.bme.hu/BMEEOVKMV64
https://fiek2.mywire.org/course/view.php?id=3489

1.10 Language of instruction

english

1.11 Curriculum requirements

Optional in the Infrastructure Engineering (MSc) programme

1.12 Prerequisites

1.13 Effective date

1 September 2022

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2. Objectives and learning outcomes

2.1 Objectives

The aim of the course is for the student to know the methodology of system-based reconstruction planning. Topics to be discussed: Overview of the causes of reconstruction. Condition assessment methodology. Basic data of system tests, preparation of load forecasts. Development strategies, scheduled development. Special reconstruction construction technologies, conditions of application of the technologies. Part of the performance is the design task to be done as a homework.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. Knows the theoretical background of reconstruction planning,
2. is aware of the possibilities of modern detection of failures,
3. understands the technical and legal background of the reconstruction planning,
4. understands the effects of planning for long-term needs,
5. knows the possibilities of predicting failures,
6. knows modern construction and maintenance technologies,
7. is aware of the problems of reconstruction during operation.

B. Skills

1. is able to identify the peculiarities of the utility during the reconstruction planning,
2. also identifies reconstruction problems during design and operation
3. complex management of various technical problems related to the reconstruction,
4. selects the optimal time and technology of the reconstruction intervention,
5. is able to present the optimal reconstruction intervention to the decision makers,
6. identifies construction defects during construction and afterwards,
7. is able to express his thoughts in an orderly form orally and in writing.

C. Attitudes

1. cooperates with the teacher and fellow students in expanding the knowledge,
2. expands his knowledge with continuous acquisition of knowledge,
3. open to the use of information technology tools,
4. strives to get to know and routinely use the tools needed for problem solving in reconstruction planning,
5. strives for an accurate and error-free solution,
6. seeks to enforce the principles of economic efficiency and environmental awareness in solving reconstruction tasks.

D. Autonomy and Responsibility

1. independently thinks about the reconstruction tasks and problems and solves them on the basis of given resources,
2. openly accepts well-founded critical remarks,
3. in some situations - as part of a team - cooperates with his / her fellow students in solving the tasks,
4. takes a systemic approach to its thinking.

2.3 Methods

Lectures with theoretical knowledge; written and oral communication. Use of IT tools and techniques. Solving a design task individually.

2.4 Course outline

Week	Topics of lectures and/or exercise classes
1.	Introduction, Reconstruction Glossary, Legislative Overview
2.	Reasons for Reconstruction, Task Issue
3.	Problems of consumption demand, load forecasting
4.	Aspects of data record systems
5.	Failure prediction regression models
6.	Failure prediction in stochastic models
7.	Reconstruction decision support systems
8.	Failure search technologies
9.	Pipe cleaning methods
10.	Trenchless reconstruction methods water supply
11.	Trenchless reconstruction methods drainage
12.	Economic aspects of reconstruction
13.	Reconstruction decision support of hungarian operators
14.	Sub-summary

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

2.6 Other information

2.7 Consultation

This Subject Datasheet is valid for:

2023/2024 semester I

II. Subject requirements

Assessment and evaluation of the learning outcomes

3.1 General rules

3.2 Assessment methods

Teljesítményértékelés neve (típus)	Jele	Értékelt tanulási eredmények
Midterm test (summary evaluation)	MT	A.1-A.7; B.7; C.2
Home project task (continuous performance measurement)	HP	A.1-A.7; B.1-B.7; C.1-C.6; 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

Abbreviation	Score
MT	60%
HP	40%
Total	**100%**

3.4 Requirements and validity of signature

3.5 Grading system

Grade	Points (P)
Excellent (5)	80<=P
Good (4)	70<=P<80%
Satisfactory (3)	60<=P<70%
Passed (2)	50<=P<60%
Fail (1)	<50%

3.6 Retake and repeat

1. The midterm test can be repeated – once without fee – at a previously determined date given in the course schedule. If the first repetition is also unsatisfactory (failed), then the test can be repeated once more, during the repetition week, by paying a fee.
2. Submit of the home assignment is due to 12.00 a.m. on the last working day of midterm, without fee. Extended submission date is 12.00 a.m. on the first working day of the examination period. In this case submission is possible by paying a fee.

3.7 Estimated workload

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Activity	Hours/semester
contact hours	2×14=28
preparation for the courses	32
preparation for the tests	30
Sum	**90**

3.8 Effective date

1 September 2022

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2023/2024 semester I