

I. Subject Specification

1. Basic Data

1.1 Title

Transport Infrastructure Design Project

1.2 Code

BMEEOUVA-QP

1.3 Type

Module with associated contact hours

1.4 Contact hours

Type	Hours/week / (days)
Consultation	2

1.5 Evaluation

Midterm grade

1.6 Credits

6

1.7 Coordinator

name	Dr. Bocz Péter
academic rank	Associate professor
email	bocz.peter@emk.bme.hu

1.8 Department

Department of Highway and Railway Engineering

1.9 Website

<https://epito.bme.hu/BMEEOUVA-QP>
<https://edu.epito.bme.hu/course/view.php?id=3625>

1.10 Language of instruction

english

Transport Infrastructure Design Project - BMEEOUVA-QP

1.11 Curriculum requirements

Compulsory in the Specialization in Infrastructure Engineering (BSc) programme

1.12 Prerequisites

Infrastructure Study Project (BMEEODHAI41) - strong

Transportation Networks (BMEEOUVAI42) - strong

Road Design (BMEEOUVA-E1) - weak

Railway Design (BMEEOUVA-E2) - weak

1.13 Effective date

1 September 2023

2. Objectives and learning outcomes

2.1 Objectives

The aim of the course is to create complex and detailed plan documentations (road and railway design) applying the knowledge of transport planning of preliminary studies

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. will learn the steps of road and railway design,
2. will learn the steps of overlay design,
3. will learn the tools of traffic calming,
4. will learn the steps of station design.

B. Skills

1. will be able to apply traffic calming,
2. will be able to determine the necessary design parameters of a roundabout,
3. will be able to design grade-separated crossing,
4. will be able to design the overlay of a road,
5. will be able to create the drawings of a railway track,
6. will be able to design a railway station,
7. will be able to express his thoughts in an orderly form orally, in writing and in standard planning work sections.

C. Attitudes

1. cooperates with the instructor during consultations,
2. is open to the professional use of IT tools,
3. strives to learn and skilfully use the tools and techniques required to solve the design problem,
4. strives for accurate and precise task solutions,
5. during the preparation of the tasks, he/she tries to produce work that is accurate and comprehensible, has an orderly appearance, that is expected at an engineering standard,
6. during the preparation of the tasks, he/she tries to implement the principles of sustainability, integrated planning and environmental awareness.

D. Autonomy and Responsibility

1. is aware of the relevance of deadlines, is intent to keep them,
2. thinks through planning tasks and problems and solves them based on given resources,
3. accepts well-founded critical comments with an open mind,
4. applies the systematic approach in his/her thinking,
5. prepares well for the consultations in order to make the consultations smoother,
6. makes a responsible decision in relation to the frequency of appearances in consultation hours, in accordance with his abilities and prior preparation, in order to fulfil the tasks at the expected level.

2.3 Methods

During the consultation, assistance in solving planning tasks (for connecting previously learned elements into a project), verbal communication, and individual homework assignments prepared independently.

2.4 Course outline

Week	Topics of lectures and/or exercise classes
1.	Railway: Railway design, preliminary site plan
2.	Road: Traffic calming
3.	Railway: Preliminary profile. Coordination of horizontal and vertical alignment
4.	Road: Consultation
5.	Railway: Typical cross sections
6.	Road: Steps of overlay design
7.	Railway: Consultation
8.	Road: Consultation
9.	Railway: Consultation
10.	Road: Design of the roundabout. Design of grade-separated crossing of the road and railway
11.	Railway: Preliminary study plan
12.	Road: Consultation
13.	Railway: Detailed plans of horizontal and vertical alignment
14.	Road: 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

Study-aids, guidelines and downloadable materials as specified in the class, technical specifications.

2.6 Other information

Due to the special nature of the subject, participation in consultation classes is not mandatory. Failure to participate in no way exempts the student either from solving the tasks to an appropriate standard, or from lack of knowledge presented in the consultation classes.

2.7 Consultation

The instructors are available for consultation during the classes.

Railway: Péter Bocz PhD. - bocz.peter@emk.bme.hu

Road: Szabolcs BARNA - barna.szabolcs@emk.bme.hu

This Subject Datasheet is valid for:

2024/2025 semester I

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 two homeworks.

During the semester, there is a continuous partial performance evaluation (6 milestones).

Completion of the milestones is mandatory, and upon successful completion of the predetermined requirements, the student will receive a separate signature for each one.

Homeworks can only be submitted if all milestones have signatures. Otherwise, the course cannot be passed.

The student passes if both homeworks have received at least satisfactory (2) marks.

3.2 Assessment methods

Evaluation form	Abbreviation	Assessed learning outcomes
1. homework (road): with continuous partial performance evaluation (3 milestones)	HW1	A.1-A.3; B.1-B.4, B.7; C.1-C.6; D.1-D.6
2. home work (railway): with continuous partial performance evaluation (3 milestones)	HW2	A.1, A.4; B.5-B.7; C.1-C.6; D.1-D.6

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
HW1	50%
HW2	50%
Sum	100%

3.4 Requirements and validity of signature

Signature cannot be obtained.

3.5 Grading system

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Grade	Points (P)
excellent (5)	$90 \leq P$
good (4)	$75 \leq P < 90\%$
satisfactory (3)	$62.5 \leq P < 75\%$
passed (2)	$50 \leq P < 62.5\%$
failed (1)	$P < 50\%$

3.6 Retake and repeat

All milestones have an additional deadline, (usually 1 week after the regular deadline) in accordance with the detailed semester schedule, in addition to paying the fee specified in the regulations. Only work submitted before the given deadline can receive a signature. Furthermore, no corrections can be made after the additional deadline, so if the submitted work does not meet the minimum requirements, it cannot get a signature.

Homework can be handed in late (usually 1 week after the regular deadline) in accordance with the detailed semester schedule, in addition to paying the fee specified in the regulations. Submitted and accepted homework can be corrected free of charge by the last deadline.

3.7 Estimated workload

Activity	Hours/semester
consultations	$14 \times 2 = 28$
prepare of the homeworks	$76 \times 2 = 152$
Sum	180

3.8 Effective date

26 January 2024

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2024/2025 semester I