

COURSE SYLLABUS AND COURSE REQUIREMENTS

ACADEMIC YEAR 2025-2026 SEMESTER I.

Course title	Railway Construction
Course Code	MSB166ANEP
Hours/Week: le/pr/lab	2/2/0
Credits	4
Degree Programme	Civil engineering BSc
Study Mode (TVSZ-ben training schedule)	full time
Requirements	mid-term mark
Teaching Period	autumn
Prerequisites	-
Department(s)	Civil Engineering
Course Director	
Teaching Staff	Balázs Eller

COURSE DESCRIPTION

A short description of the course (max. 10 sentences).

Neptun: Instruction/Subjects/Subject Details/Basic data/Subject description

The course contains the fundamentals of the railway design, maintenance and building. First, the basic keywords will be discussed, to understand every part of the professional materials. At the practice basic calculations and drawings will be made. In the middle of the semester, a field trip is planned to the railway station of Pécs

SYLLABUS

Neptun: Instruction/Subjects/Subject Details/Syllabus

1. GOALS AND OBJECTIVES

Goals, student learning outcome.

Neptun: Instruction/Subjects/Subject Details/Syllabus/Goal of Instruction

The aim of the course is to provide students with an understanding of basic railway concepts as well as fundamentals of design.

2. COURSE CONTENT

(Neptun: Instruction/Subjects/Subject Details/Syllabus/Subject content)

TOPICS

LECTURE

1. Introduction, details, etc.
2. History of the railways, Basic parts of the railways, definitions
3. Railway design I.
4. Railway design II.
5. Railway structure design
6. Mid-term test 1.
7. Elements of the railways structure I.
8. **AUTUMN BREAK**
9. Elements of the railways structure II.
10. Railway construction and maintenance I.
11. Railway construction and maintenance II.
12. Level crossings
13. Mid-term test II.
14. Mid-term tests - retake

PRACTICE

- 1.-2. Assignment release (Homework 1, 2 and 4)
- 3.-4. Calculation of a design problem Homework 1.
- 5.-6. Drawing of a railway alignment Homework 2.
- 7.-8. Assignment release of Homework 3.
10. Consultation of HW 3.
- 11.-14. Presentations, Consultation, Submission.

DETAILED SYLLABUS AND COURSE SCHEDULE

ACADEMIC HOLIDAYS INCLUDED

LECTURE

week	Topic	Compulsory reading; page number (from ... to ...)	Required tasks (assignments, tests, etc.)	Completion date, due date
1.	History of the railways, Basic parts of the railways, definitions I.-II.	Presentation 1-2.		
2.	History of the railways, Basic parts of the railways, definitions I.-II.	Presentation 1-2.		
3.	Railway design I.	Presentation 3.		
4.	Railway design II.	Presentation 3.		
5.	Railway structure design	Presentation 4.		
6.	Mid-term test 1.	-	test	
7.	Elements of the railways structure I.	Presentation 5.		
8.	AUTUMN BREAK			
9.	Elements of the railways structure II.	Presentation 5.		
10.	Railway construction and maintenance I..	Presentation 6.		
11.	Railway construction and maintenance II.	Presentation 6.		
12.	Level crossings	Presentation 7.		
13.	Mid-term tests II.		test	
14.	Mid-term tests - retake	-	test	

PRACTICE, LABORATORY PRACTICE

Week	Topic	Compulsory reading; page number (from ... to ...)	Required tasks (assignments, tests, etc.)	Completion date, due date
1.	Assignment release HW 1-2-4.			
2.	Assignment release HW 1-2-4.			
3.	Calculation of a design problem HW 1.			
4.	Calculation of a design problem HW 1.			
5.	Drawing of a railway alignment HW 2.			
6.	Drawing of a railway alignment HW 2.			
7.	Assignment release HW 3.		test	
8.	Assignment release HW 3.			
9.	SPRING BREAK			
10.	Consultation of HW 3.			
11.	Presentations, Consultation, Submission.			
12.	Presentations, Consultation, Submission.		test	
13.	Presentations, Consultation, Submission.	-	test	
14.	Presentations, Consultation, Submission.			SUBMISSION

3. ASSESSMENT AND EVALUATION

(Neptun: Instruction/Subjects/Subject Details/Syllabus/Examination and Evaluation System)

ATTENDANCE

In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description.

Method for monitoring attendance (e.g.: attendance sheet / online test/ register, etc.)

Attendance sheet.

ASSESSMENT

Cells of the appropriate type of requirement is to be filled out (course-units resulting in mid-term grade or examination). Cells of the other type can be deleted.

Course-unit with final examination

Mid-term assessments, performance evaluation and their weighting as a pre-requisite for taking the final exam

(The samples in the table to be deleted.)

Type	Assessment	Weighting as a proportion of the pre-requisite for taking the exam
1. Test 1	max. 20 points	33 %
2. Test 2	max. 20 points	33 %
3. Home assignment (project documentation)	max. 6 points	10 %
4. Home assignment (project documentation)	max. 4 points	7 %
5. Home assignment (project documentation)	max. 5 points	8,5 %
6. Home assignment (presentation)	max. 5 points	8,5 %

Requirements for the end-of-semester signature

(Eg.: mid-term assessment of 40%)

mid-term assessment of 40%

Re-takes for the end-of-semester signature (PTE TVSz 50§(2))

The specific regulations for grade betterment and re-take must be read and applied according to the general Code of Studies and Examinations. E.g.: all the tests and the records to be submitted can be repeated/improved each at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.

All the assignments can be fixed once, all the tests can be retaken.

Type of examination (written, oral):written

The exam is successful if the result is minimum **40** %. (The minimum cannot exceed 40%.)

Calculation of the grade (TVSz 47§ (3))

The mid-term performance accounts for **50** %, the performance at the exam accounts for **50** % in the calculation of the final grade.

Calculation of the final grade based on aggregate performance in percentage.

Course grade	Performance in %
excellent (5)	85%...
good (4)	70%...85%
satisfactory (3)	55%...70%
pass (2)	40%...55%
fail (1)	below 40 %

The lower limit given at each grade belongs to that grade.

4. SPECIFIED LITERATURE

In order of relevance. (In Neptun ES: Instruction/Subject/Subject details/Syllabus/Literature)

COMPULSORY READING AND AVAILABILITY

[1.] Lecture notes (can be found in TEAMS)

RECOMMENDED LITERATURE AND AVAILABILITY

[2.] RAILWAY CONSTRUCTION (2015) – Sz. Fischer, B. Eller, A. Németh, Z. Kada, Universitas-Győr Nonprofit Kft. Editor: Szabolcs Fischer (web: https://www.researchgate.net/publication/282246421_Railway_construction)