

## Tárgytematika / Course Description

### Railway tracks 1

EKNB\_KETA008

**Tárgyfelelős neve /**

**Teacher's name:** dr. Fischer Szabolcs

**Félév / Semester:** 2024/25/2

**Beszámolási forma /**

**Assesment:** Folyamatos számonkérés

**Tárgy heti óraszám /**

**Teaching hours(week):** 3/0/0

**Tárgy féléves óraszám /**

**Teaching hours(sem.):** 0/0/0

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### OKTATÁS CÉLJA / AIM OF THE COURSE

Calculation of the loads on the railway track, the sleeper, the ballast bed and the substructure. Standard (common) track (geometry) connections. Calculation and layout of standard track connections and set of switches (liras). Calculation and setting of non-standard track connections. Railway station design, construction requirements. Tramways. Design guidelines for tramways, the most modern track structure solutions. Design guidelines, track structures and construction technologies of underground railways.

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### TANTÁRGY TARTALMA / DESCRIPTION

Presentations:

Week 1: Forces, stresses. Inner-force diagrams. Loads on the railway track. Use and calculation of the railway track.

Week 2: Calculation of rail fasteners and sleepers (loads, stresses). Calculation of the ballast bed and substructure.

Week 3: Track connections I.

Week 4: Track connections II.

Week 5: Curved turnouts. Standard track connections and set of switches (liras).

Week 6: Individual (non-standard) track connections I.

Week 7: Individual (non-standard) track connections II.

Week 8: Railway station design I.

Week 9: Railway station design II.

Week 10: Tramways

Week 11: Underground railways

Week 12: Dimensioning of railway (common railways, tramways and undergrounds) track structures with finite element software

Week 13: Mid-term exam (at the lecture)

Week 14: additional mid-term exam (at the lecture)

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### SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Examining and evaluation system:

Consultation: At specified times and places.

Independent, off-schedule work: preparation for the mid-term exam.

Homework: there is no homework to be done during the semester!

Class visit: mandatory, max. 2 absences allowed, medical certificate required! The presence is checked with a catalog.

Mid-term exam:

The mid-term exam will be at the time specified in the first week of the semester (depending on the semester schedule, but approximately at week 13). The mid-term exam will also include theoretical questions and computational tasks on the topics of turnouts, standard and individual (non-standard) track connections, set of switches (liras).

All questions and calculation tasks are evaluated separately in the closed area. The mid-term exam can be replaced only once.

0-59.99%: Insufficient (1)

60.00-69.99%: sufficient (2)

70.00-79.99%: medium (3)

80.00-89.99%: good (4)

90.00-100%: excellent (5)

Signature:

At the end of the semester's first 14 weeks, the signature can be obtained by the student who wrote the mid-term exam with sufficient (2) results or successfully replaced it.

Classification:

The student receives a grade for his / her mid-term exam.

Examination during the examination period and evaluation:

The evaluation of the full semester of the grade included in the NEPTUN system is the mark received for the dissertation.

Exam questions: -

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## KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Compulsory literature:

Lichtberger B.: Track compendium, Eurail press, 2005

Esveld, C.: Modern railway track, Second Edition, MRT-Productions, 2001

Gajári J.: Vasútépítéstan I-II., Tankönyvkiadó, Budapest, 1983

Fischer Sz., Eller B., Kada Z., Németh A.: Railway construction, Universitas-Győr Nonprofit Kft., Győr, 2015

MÁV Zrt.: Korszerű vasút-korszerű vasúttechnika. Vasútépítés és pályafenntartás I-II.

Lecture materials, regulations, study-aids, etc. in pdf and ppt format posted on [szelearning.sze.hu](http://szelearning.sze.hu) during the semester.

Own notes made during the semester.

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**AJÁNLOTT IRODALOM / RECOMMENDED MATERIAL**