

Tárgytematika / Course Description

Bridge Structures 1

EKNB_SETA009

Tárgyfelelős neve /

Teacher's name: dr. Teiter Zoltán

Félév / Semester: 2022/23/2

Beszámolási forma /

Assesment: Vizsga

Tárgy heti óraszám /

Teaching hours(week): 2/1/0

Tárgy féléves óraszám /

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

OKTATÁS CÉLJA / AIM OF THE COURSE

On the basis of the knowledge gained in the civil engineering basic courses students are introduced to the bridge engineering, first by its historical and aesthetical aspects, later the fundamentals of bridge engineering are taught showing the way of leading linear structures over obstacles. It is discussed how their rules and conditions determine the forming and the structures of the bridge and its structural parts.

TANTÁRGY TARTALMA / DESCRIPTION

The main types of superstructures and bridges are presented, considering their structural system, construction method and expected lifetime. The basics of the analyses and the maintenance of bridges are also dealt with.

The aim of this module is to introduce students to the design and construction of bridges and to give such a general knowledge, which is complete on its basic level and can help professionals going on to other fields while can also be a base for other ones intending to study more bridge engineering in a more specific way.

On successfully completing this course, students should be able to

- recognize and interpret the structural system of bridges, understand the structural behaviour of the different bridge types;
- make difference among the types of bearings, joints, piers and abutments;
- identify the special construction methods;
- determine the actions to be considered for the design of a bridge according to Eurocodes.

The course includes lectures held by guest lecturers, self-made presentations etc.

Week #01

Introduction: getting acquainted, information about the subject

Lecture: History of bridges and used materials.

Week #02

Introduction: 1st homework

Lecture: Fundamentals I-II., Aesthetics

Group work

Week #03

Test #1

Lecture: Spans, types, cross-sections I

Week #04

Lecture: Spans, types, cross-sections II

Week #05

Lecture: The concrete in bridges

Group work

Week #06

Test #2

Lecture: The steel in bridges

Week #07

Introduction: 2nd homework

Lecture: Construction methods

Week #08

Test #3

Lecture: Presentation of homework I.

Group work

Week #09

Lecture: Bridge equipments; Dewatering

Group work

Week #10

Lecture: Eurocode, loads & actions on bridges, calculation

Week #11

Lecture: Presentation of homework II.

Week #12

Test #4

Lecture: Visiting the nearest bridge

Week #13

Lecture: Bridge types

Additional week

Guest lecturer

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESSMENT'S METHOD

Assesments: coursework+examination

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Bridge Engineering: Construction and Maintenance / ed by Wai-Fah Chen, Lian Duan, 2003

Bridge Engineering: Substructure Design / ed by Wai-Fah Chen, Lian Duan, 2003