Tárgytematika / Course Description

Bridge Structures 1

EKNB_SETA009

Tárgyfelelős neve / Teacher's name: dr. Teiter Zoltán

Félév / Semester: 2021/22/2

Beszámolási forma / Assesment: Vizsga

Tárgy heti óraszáma / Teaching hours(week): 2/1/0

Tárgy féléves óraszáma / 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: Visting the nearest bridge
Week #13
Lecture: Bridge types
Additional week
Guest lecturer

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Assesments: coursework+examination

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

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

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