1. Course number and name

RB-S1-18-S71-D5, **Bridges design**

2. Credits and contact hours*

4 ECTS, project: 45 hours**

3. Instructor's or course coordinator's name

Grzegorz Poprawa PhD

4. Text book, title, author, and year

- EN 1990:2002 Eurocode: Basis of structural design.
- EN 1991-2:2003 Eurocode 1: Actions on structures - Part 2: Traffic loads on bridges

a. other supplemental materials

- Designers' Guide to EN 1990 Eurocode: Basis of Structural Design, Authors: H. Gulvanessian, J.-A. Calgaro and M. Holický, Published: 2002
- Designers' Guide to Eurocode 1: Actions on Bridges: EN 1991-2, EN 1991-1-1, -1-3 TO -1-7 and EN 1990 Annex A2, Authors: J.-A. Calgaro, M. Tschumi, H. Gulvanessian and H. Gulvanessian, Published: 2010, ICE
- Designers' Guide to EN 1992-2 Eurocode 2: Design of concrete structures: Part 2: Concrete bridges, Authors: Chris R. Hendy and David A. Smith, Published: 2007, ICE
- Designers' Guide to EN 1993-2 Eurocode 3: Design of Steel Structures: Part 2 : Steel Bridges, Authors: Chris R. Hendy and Chris J. Murphy, Published: 2007, ICE

5. Specific course information

a. brief description of the content of the course (catalog description)

Project:

Conceptual and static design of simply supported road or railway bridge. Concrete slab analysis. Orthotropic plate analysis. Steel girder analysis. Concrete beam analysis.

b. prerequisites or co-requisites

Introductory courses on: Structural Mechanics, Concrete Structures, Steel Structures

c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program

Required.

6. Specific goals for the course

a. specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic

The student can:

- identify and discuss a structural system of a given bridge,
- design concrete or steel main beam of a railway or road bridge,
- design concrete bridge slab.

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

K1A_U02, K1A_U03, K1A_U04, K1A_U07, K1A_K03

7. Brief list of topics to be covered

1. bridge loads selection
2. combination of loads
3. calculations of bridge deck
4. calculation of bridge main beam

*- Consultations were not included in the contact hours

**-per semester