



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Bridge Engineering III

### Course

Field of study

Civil Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

part-time

Year/Semester

V/9

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

18

Laboratory classes

0

Other (e.g. online)

Tutorials

Projects/seminars

18

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

dr inż. Krzysztof Sturzbecher

Responsible for the course/lecturer:

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Wydział Inżynierii Lądowej i Transportu,

ul. Piotrowo5, 61-138 Poznań

### Prerequisites

### Course objective

Gain knowledge of basic concrete and steel bridges construction methods. Familiarize with basic construction techniques in bridge engineering. Ability to choose the most suitable method of construction in relation to various bridge structures.

### Course-related learning outcomes

Knowledge

Basic knowledge of bridge deck construction methods such as incremental launching, cast in situ, precast elements, advance shoring and heavy lifting. Basic knowledge of concrete and steel bridge construction methods.



### Skills

Ability to prepare a plan of concrete works, carry out necessary geometrical checks during the bridge construction. Ability to design falsework and formwork with taking into account site constraints, bridge type and method of construction.

### Social competences

The ability of independent increasing knowledge of modern processes and technologies in civil engineering. Understand the necessity of further professional and personal development. Recognize the needs and possibilities for further studying (undergraduate and postgraduate courses)

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Written exam: pass mark 60%, design project

### Programme content

Concrete bridge construction methods

Methods of steel bridge erection methods

Steel bridge fabrication techniques and methods of transportation

Falsework and formwork design for bridge deck and pier construction

A detailed sequence of concrete bridge construction

Concrete works plan, waterproofing, reinforcement placing, construction joints

### Teaching methods

Lectures: presentations with examples

Tutorials: task and assessment criteria explanation, further clarification of lecture content

### Bibliography

Basic

1. Józef Głomb.: Technologia budowy mostów betonowych. WKł. Warszawa 1982
2. WSPÓŁCZESNE TECHNOLOGIE BUDOWY MOSTÓW. X Jubileuszowe Seminarium Naukowo-Techniczne Wrocławskie Dni Mostowe. DWE, Wrocław 2014.
3. Biliszczyk J., Hołowaty J., Onyksy J., Sadowski K., Toczkiwicz R.: MOSTY . BETONOWE WZNOSZONE METODĄ SEKCJA PO SEKCJI. DWE Wrocław 2014.
4. MOSTY ŁUKOWE dzieła kultury DWE Wrocław 2015
5. Kazimierz Furtak, Witold Wołowicki; Rusztowania mostowe. WKł. Warszawa 2007



6. Leszek Janusz, Arkadiusz Madaj: Obiekty inżynierskie z blach falistych. WKŁ. Warszawa 2007

Additional

Jan Biliszcuk: Mosty podwieszane. Projektowanie i realizacja. Arkady, Warszawa 2005

2. Arkadiusz Madaj, Witold Wołowicki: Budowa i utrzymanie mostów. Wymagania techniczne, badania, naprawy. WKŁ. Warszawa 2001
3. MOSTY Przemiany w projektowaniu i technologiach budowy DWE Wrocław 2017.
4. Czesław Machelski.: Budowa Konstrukcji gruntowo-powłokowych. DWE Wrocław 2013.
5. DUŻE MOSTY WIELOPRZĘŚŁOWE. DWE Wrocław 2016.
6. Gerhard Mehlhorn: Handbuch Bruecken. Springer-Verlag, Berlin, Heidelberg, New York 2010
7. Svensson, Holger.: Cable-Stayed Bridges . Ernst & Sohn, Berlin 2012
8. Paul Mondorf .: Concrete Bridges.: CRC Press (September 14, 2006)
9. W.F. Chen Lian Duan: Bridge Engineering Handbook . Crc Employee. CRC Press 1999.
10. Robert Ratay Temporary Structures in Construction McGraw-Hill Professional; 3 edition (April 26, 2012)

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Seminarium-mostowe.pl

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	100	4,0
Classes requiring direct contact with the teacher	38	1,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	62	2,5

<sup>1</sup> delete or add other activities as appropriate