



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Bridge construction II [S1Bud1>BM2]

### Course

Field of study

Civil Engineering

Year/Semester

3/6

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

### Number of hours

Lecture

30

Laboratory classes

0

Other (e.g. online)

0

Tutorials

15

Projects/seminars

30

### Number of credit points

4,00

### Coordinators

dr hab. inż. Wojciech Siekierski

wojciech.siekierski@put.poznan.pl

### Lecturers

### Prerequisites

steel structures, concrete structures, strength of materials, structural mechanics

### Course objective

broadening the knowledge in the field of bridge construction and introducing the subject of underground structures

### Course-related learning outcomes

KNOWLEDGE:

KB\_W09 - Student knows the rules of constructing and analysing general, low-energy, passive, sustainable, industrial, road, bridge and railway buildings;

KB\_W10 - Student has basic general knowledge of general infrastructure design and road and rail transport.

SKILLS:

KB\_U06 - Student can prepare statements of strengths influencing the building units and perform static analysis of statically determinate and nondeterminate bar structures; can determinate natural frequency for simple bar structures;

KB\_U07 - Student is able to correctly utilise numerical, analytical, simulation and experimental methods, in

order to identify and solve problems in the field of building engineering; to obtain and verify the results.

#### SOCIAL COMPETENCIES:

KB\_K02 - Student takes responsibility for the accuracy and reliability of work results and their interpretation;

KB\_K08 - Students are ready to critically evaluate the knowledge and received content and critically evaluate the results of their own work.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:

lecture: written test; pass mark: 50% of points

exercises: test; pass mark: 50% of points

project: assessment of the correctness of the exercise performed

### Programme content

bridge structures design

### Course topics

bridge construction materials, traffic design of bridges, superstructure design of slab bridges, beam bridges, frame bridges, arch bridges, buried flexible steel structures, issues of bridge construction technology

### Teaching methods

lecture: multimedia presentation supported by the content provided on the blackboard

exercises: multimedia presentation supported by the content given on the blackboard and carrying out the tasks given by the teacher - practical exercises

project: carrying out a task given by the teacher

### Bibliography

#### Basic

Madaj A., Wołowicki W., Podstawy projektowania budowli mostowych, WKŁ, Warszawa, 2007

Madaj A., Wołowicki W., Projektowanie mstów betobnowych, WKŁ, Warszawa, 2010

Ryżyński A., Wołowicki W., Skarzewski J., Karlikowski J., Mosty stalowe, WKŁ, Warszawa, 1985

Karlikowski J., Madaj A., Wołowicki W., Mosty zespolone stalobetonowe, WKŁ, Warszawa, 2016

#### Additional

Karlikowski J., Sturzbecher K., Mosty stalowe – przewodnik od ćwiczeń projektowych, Wydawnictwo PP, Poznań, 1993

Karlikowski J., Sturzbecher K., Mosty belkowe i zespolone, Wydawnictwo PP, Poznań, 1998

Szczygieł J., Mosty z betonu zbrojonego i sprężonego, WKŁ, Warszawa, 1972

### Breakdown of average student's workload

	Hours	ECTS
Total workload	107	4,00
Classes requiring direct contact with the teacher	77	3,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00