



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Bridge construction III [S1Bud1>BM3]

Course

Field of study

Civil Engineering

Year/Semester

4/7

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

elective

Number of hours

Lecture

20

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

30

Number of credit points

6,00

Coordinators

dr hab. inż. Wojciech Siekierski

wojciech.siekierski@put.poznan.pl

Lecturers

Prerequisites

Knowledge of structure statics, mechanics and strength of materials, rules of live load applying, internal forces determination, design of cross- and longitudinal section of steel and concrete bridges, load-bearing capacity determination

Course objective

Ability to design bridges supports and steel, concrete and composite bridges, including statistically indeterminate structures

Course-related learning outcomes

KNOWLEDGE:

KB_W10 - Student has basic general knowledge in the field of designing general infrastructure as well as road and railroad transport.

SKILLS:

KB_U17 - Student can evaluate the technical condition of building facilities and indicate appropriate methods for their maintenance.

SOCIAL COMPETENCIES:

KB_K07 - Student understands the need to transfer to the society the knowledge about building engineering, transfer the knowledge in a clear and easily comprehensible manner.

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, minimum grade 3,0

Project: done correctly and knowledge about its content

Programme content

Analysis and maintenance of bridge structures.

Course topics

Modelling of beam and plate bridges

Dimensioning rules for bridges

Selected design issues for bridges

Damage to bridges

Inspection and testing of bridges

Construction methods for concrete and steel bridges and the impact of these methods on the calculations

Underground structures

Teaching methods

Lectures: multimedia presentations, illustrated with examples shown on blackboard.

Exercises: in-camera computational tasks and field activities.

project: task according to the given topic

Bibliography

Basic

Madaj A., Karlikowski J., Wołowicki W., Mosty zespolone stalowo-betonowe, WKŁ, Warszawa, 2016

Ryżyński A., Wołowicki W., Karlikowski J., Skarżewski J., Mosty stalowe. PWN, Warszawa-Poznań, 1984

Karlikowski J., Sturzbecher K., Mosty stalowe. Przewodnik do ćwiczeń projektowych. Wyd. PP, Poznań, 1993

Furtak K., Mosty zespolone. PWN. Warszawa – Kraków, 1999

Madaj A., Wołowicki W., Projektowanie mostów betonowych. WKŁ, Warszawa, 2010

Additional

Cusens A.R., Pama R.P., Analiza statyczna pomostów. WKŁ, Warszawa, 1981

50 C.R. Hendy, D.A. Smith: Designers' guide to EN 1992-2 Eurocode 2: Design of concrete structures.

Part 2: Concrete Bridges, Thomas Telford Limited, 2007

51 C.R.Hendy, R.P.Jonson: Designers' guide to EN 1994-2 Eurocode 4: Design of steel and composite

structures. Part 2: General Rules and Rules for Bridge, Thomas Telford Limited, 2006

Jarominiak A., Mosty podwieszone. Oficyna Wyd. Politechniki Rzeszowskiej, Rzeszów, 1998

Biliszczyk J., Mosty podwieszone. Projektowanie i realizacja. Arkady, Warszawa, 2005

Karlikowski J., Madaj A., Wołowicki W., Mostowe konstrukcje zespolone stalowo – betonowe. Wydanie 2. WKiŁ, Warszawa, 2007.

Madaj A., Wołowicki W.: Budowa i utrzymania mostów. WKiŁ, Warszawa, 2013

Kmita J., Bień J., Machelski Cz., Komputerowe wspomaganie projektowania mostów. WKiŁ, Warszawa, 1989

Knauff M., Obliczanie konstrukcji żelbetowych według Eurokodu 2. PWN, Warszawa, 2012

Koreleski J., Zespolone konstrukcje mostowe. PWN. Warszawa – Kraków, 1967

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

Zobel H., Naturalne zjawiska termiczne w mostach. WKiŁ, Warszawa, 2003

Furtak K., Śliwiński J., Materiały budowlane w mostownictwie. WKiŁ, Warszawa, 2004

Bródka J., Broniewicz M., Projektowanie konstrukcji stalowych według Eurokodów, PWT, 2013

Łubiński M., Filipowicz A., Żółtowski W. Konstrukcje metalowe, Arkady, 2004

Breakdown of average student's workload

	Hours	ECTS
Total workload	150	6,00
Classes requiring direct contact with the teacher	50	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	100	4,00