



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Concrete Structures

Course

Field of study

Civil Engineering

Area of study (specialization)

Structural Engineering

Level of study

Second-cycle studies

Form of study

part-time

Year/Semester

1/1

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

Number of hours

Lecture

18

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

18

Number of credit points

4

Lecturers

Responsible for the course/lecturer:

dr inż. Piotr Frąszczak

Responsible for the course/lecturer:

Prerequisites

A student has the knowledge of general mechanics and strength of materials, basis of theory of reinforced concrete structures, knows analysis principles of simple and complex RC elements design. A student knows building standards and requirements concerning design of building structures and their elements.

Course objective

The gaining of knowledge and skills concerning design of RC slab elements (working in different way) in



ULS and SLS. Analysis of building structures. Preparing for modeling of RC structures by the Autodesk Robot Structural Analysis Program.

Course-related learning outcomes

Knowledge

1. A student knows the basic design method of RC slab elements in RC structures
2. A student presents the design issues of spatial RC structures
3. A student knows the range applying of computers program needed to analyse and design RC structures.

Skills

1. A student uses building standards of loads on building structures as well as in the static calculation and dimensioning of RC structures
2. A student is able to design RC slab structures with taken frames into consideration

Social competences

A student understands the need for lifelong learning and knows how to interact in a group. He correctly identifies and resolves problems associated with his profession

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture - test checks the last class. Exercise design - execution of the project and its oral defense.

Grading scale:

- 5.0 - the student obtained more than 90% of the points in the colloquium or defense of the project,
- 4.5 - the student obtained from 80% to 90% of the points in the colloquium or project defense,
- 4.0 - the student obtained from 70% to 80% of the points in the colloquium or project defense
- 3.5 - the student obtained from 60% to 70% of the points in the colloquium or project defense,
- 3.0 - the student obtained from 50% to 60% of the points in the colloquium or project defense,
- 2.0 - the student obtained less than 50% of the points from the colloquium or project defense

Programme content

Lecture

1. Method of designing and dimensioning RC slab structures especially two-way reinforced slabs Load report in two-way reinforced slabs
2. Dimensioning of reinforced concrete slab structures to bending and shear ULS, SLS.

Projects



Project of two-way reinforced slab

Teaching methods

Lectures illustrated with slides and films - problem lecture / seminar lecture / lecture with multimedia presentation. Design exercises - practical implementation of an engineering task.

Bibliography

Basic

PN-EN 1992-1-1 Projektowanie konstrukcji z betonu.

PN-EN 1990 Podstawy projektowania konstrukcji

PN-EN 1991-1 Oddziaływania na konstrukcje

Kobiak J. Stachurski W.: Konstrukcje żelbetowe, Arkady

Starosolski W.: Konstrukcje żelbetowe według PN-B-03264:2002 i Eurokodu 2. PWN

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

Halicka A, Franczak D.: Projektowanie zbiorników żelbetowych. Tom 1: Zbiorniki na materiały sypkie. Tom 2 Zbiorniki na ciecz, PWN,

Ajdukiewicz A.: Eurokodu 2. Podręczny skrót dla projektantów konstrukcji żelbetowych.

Knauff M., Golubińska A.: Tablice i wzory do projektowania konstrukcji żelbetowych z przykładami obliczeń, PWN Warszawa 2013

Additional

Łapko A., Jansen B.C.: Podstawy projektowania i algorytmy obliczeń konstrukcji żelbetowych, Arkady, Warszawa 2005

Knauff M., Golubińska A.: Tablice i wzory do projektowania konstrukcji żelbetowych z przykładami obliczeń, PWN, Warszawa 2013

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,0
Classes requiring direct contact with the teacher	36	1,5
Student's own work (literature studies, preparation for tests, project preparation) ¹	64	2,5

¹ delete or add other activities as appropriate