

<i>Course title:</i> Concrete Structures	<i>Code:</i> ErS4
<i>Field of study:</i> Civil Engineering	<i>Year / semester:</i> 1/1
<i>Specialty:</i>	<i>Course:</i> compulsory
<i>Hours / week:</i> Lectures: 1 Tutorials: - Laboratories: - Project / Seminars: -	<i>Number of credits:</i> 6

Lecturer: Tomasz Oleszkiewicz, PhD,
 Tel. +48 61 665 2870
 e-mail: tomasz.oleszkiewicz@put.poznan.pl

Institute / Faculty: Institute of Structural Engineering,
 Faculty of Civil and Environmental Engineering,
 ul. Piotrowo 5, 60 965 Poznań
 tel. +48 61 665 2454, fax +48 61 876 6116
 e-mail: office_se@put.poznan.pl

Status of the course in the study program:
 Compulsory course for students of Civil Engineering

Course description:

The course will be carried on in the form of lectures and complementary classes. A concise discussion on basic principles, the historical development and application to constructed facilities plain concrete, reinforced concrete and prestressed concrete should give an adequate introduction to further studying. Second part of the lecture course covers steel and concrete properties. Specifics to be discussed include structure, composition, physical, mechanical and rheological properties of reinforcing steel and hardened concrete. Structural testing including compression testing of concrete specimen and tension testing of steel specimen and also stress-strain relation of steel and concrete will be discussed. Afterwards, the fundamentals of ultimate limit states and serviceability states for crack width and deflection control of flexural members, according to the European Standards (EC2) will be presented. Last part focuses on behavior under load, basic principles and practical design of reinforced rectangular and T-beams according to EC2 specifications.

Teaching outcomes:

The aim of this course is to give the student a basic understanding both the service load and the limit state of load at failure, using the EC2 Code requirements for ultimate load design of reinforced flexural members. The student can become familiarized with the theoretical and practical questions concerning material behavior, flexure, shear and design of reinforced concrete structures according to the latest specifications.

Prerequisites:

A thorough foundation in structural analysis and strength of materials.

Teaching method:

Lectures supported by multimedia presentations, example classes and individual projects.

Assessment method:

Final test and projects.

Bibliography:

1. Mosley W.H., Bungey J.H., Hulse R.: Reinforced Concrete Design to Eurocode 2, (Sixth Edition)
2. EN 1992-1-1:2004. Eurocode 2: Design of Concrete Structures – Part 1-1: General rules and rules for buildings