

Faculty of Architecture

Department: Construction Engineering

Professional field: 5.7. Architecture, Civil Engineering and Geodesy

Specialty: Building Constructions

Educational-qualification degree: Master

COURSE DESCRIPTION

1. Course title: **Special Reinforced Concrete Structures**
2. Course code: **MAS 3005**
3. Type of course: **compulsory**
4. Level of course: **Master**
5. Year of study: **first**
6. Semester when the course is delivered: **second**
7. Number of ECTS credits allocated: **7,5 (4,5 – lectures, 1,5 – seminars and course project and 1,5 – practice)**
8. Name of lecturer: **Assoc. Prof., Eng. Ivan Pavlov, PhD**
9. Learning outcomes of the course: as a result of the course students will know about the characteristics of complex reinforced concrete structures, will be able to use the methods for their calculation, sizing and detailing, according to Bulgarian and European standards.
10. Mode of delivery: **face-to-face**
11. Prerequisites and co-requisites: students have to possess the necessary theoretical and practical training in the Bachelor's course of Construction Engineering.
12. Course contents: to form knowledge regarding the special cases of loading, support conditions and meshes in rectangular, triangular and circular reinforced concrete slabs, construction and calculation of thin-walled structures – cylindrical shells, shells with a double positive or negative Gaussian curvature, hanging shells, rectangular and circular tanks, water and intake towers, silos and bunkers, tall chimneys, ultrahigh building structures.
13. Recommended or required reading:
 - Игнatieв, Н., Стоманобетон и масивни конструкции, Техника, София, 1976.
 - Бранков, Г., Масивни конструкции. Техника, София, 1978.
 - Eurocodes: EN1992-1, EN1992-4, EN1087, EN1998-1, EN1998-5.
 - Taranath, B. S., Reinforced Concrete Design of Tall Buildings, CRC Press, 2009.
 - Димитров, Б., Стоманобетонни конструкции, Техника, София, 1987.
 - Игнatieв, Н., Изчисляване на ососиметрични стоманобетонни тънкостенни конструкции за температурни въздействия, Годишник на ВИСИ, София, 1976.
 - Маноилов, Л., Стоманобетон, Техника, София, 2011.
 - Илиев, И., Високи стоманобетонни комини, Техника, София, 1952.
 - Paulay, T. at al., Seismic Design of Reinforced Concrete Buildings, USA, 1992.
14. Planned learning activities and teaching methods: **lectures, seminars, course project, practice, contact hours, independent work.**
15. Assessment methods and criteria: defense of a course project – a separate grade, written and oral examination. The grade from the semester examination is formed as follows: written examination – 80% and oral examination – 20%. The practice is assessed by defense of a report of the subject of the practical work.
16. Language of instruction: **Bulgarian, English**
17. Work placement is **envisaged in the curriculum – 15 hours**