

| Title of Course            | Complex Concrete Structures  |             |              |
|----------------------------|--|-------------|--------------|
| Semester                   | Autumn/Spring  |             |              |
| Teaching Hours per Course: | Total  | - Lectures: | - Tutorials: |
|                            |  | 60          | 30           |
| ECTS Credits               | 3,5  |             |              |
| The content of education   |  |             |              |
| Aims of Course             | <p>The aim of education process is the acquisition by students skills to design concrete elements and structures taking into account the redistribution of internal forces, understanding of the 3D constructions and prestressed concrete structures and their non-linear characteristics. Familiarization with the principles of idealization non-linear behaviour of the structures. Understanding the essence of the phenomenon of redistribution of internal forces under long-term loads</p>   |             |              |
| Program                    | <p>Idealization of reinforced concrete structures regarding to their non-linear behaviour; Redistribution of internal forces in beam and coating systems; specificity of calculating and constructing shields, walls and wall-beams. Calculation and construction of reinforced concrete rectangular tanks for water and sewage. Specificity and types of coating structures. Calculation and construction of silos. Calculation and construction of cooling towers. Design of prestressed. Industrial halls timbered spatial systems. Calculation and construction of retaining walls</p> <p>Auditorium: Solving sample design tasks enabling learn how to identify technical issues that require the use of non-standard methods of analysis</p> |             |              |
| Conditions of completion   | <p>The basis for passing is:</p> <ul style="list-style-type: none"> <li>- the presence in all classes and auditorium exercises,</li> <li>- a positive evaluation of the final exam,</li> </ul> <p>A student may be contacted with the teacher by e-mail and consultations</p> <p><b>Grading Standard:</b> The final grade is a weighted average rating of the exam (weight 0.7) and auditorium colloquium (weight 0.3).</p> <p><b>Grade: 2-5</b></p> <p><b>Total Points 3,5 ECTS</b></p>   |             |              |
| Teacher                    | Dr Eng. Krzysztof Kamiński   |             |              |