

Course Unit Descriptor

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| Study Programme: Civil Engineering | | |
| Course Unit Title: Repair of Concrete Structures | | |
| Course Unit Code: GG518 | | |
| Name of Lecturer(s): Prof. dr Vlastimir Radonjanin, Prof. dr Mirjana Malešev | | |
| Type and Level of Studies: Master Level | | |
| Course Status (compulsory/elective): compulsory | | |
| Semester (winter/summer): Summer | | |
| Language of instruction: English | | |
| Mode of course unit delivery (face-to-face/distance learning): Face-to-face | | |
| Number of ECTS Allocated: 4 | | |
| Prerequisites: None | | |
| Course Aims: Obtaining knowledge on basic aspects on the durability of concrete structures and the methodologies and methods for assessing the real condition of concrete and precast structures. | | |
| Learning Outcomes: Acquired knowledge is used in professional courses and engineering practice. A student is capable of selecting and planning the most optimal methods for repairing a determined concrete elements or structures depending on the cause and degree of damage, repair possibilities, availability of financial resources and other relevant conditions | | |
| Syllabus: Technical conditions and criteria for selecting the material for concrete structure repair. Preparation of concrete structures for repair (concrete preparation, reinforcement preparation). Techniques of in-building reparatory materials. Methods for increasing the filling possibilities. Crack repair procedures. Structural repair and reinforcement (methods, details and calculation basis); decreasing the bearing capacity of structural elements; transferring the load to adjacent structural elements of satisfactory bearing capacity; decreasing the span in structures without satisfactory bearing capacity; alteration of the structural system; strengthening the structures by prestressing procedures; repairs by cross section increase; reinforcement and repair by gluing additional lamellas. Materials for repairs and protection of concrete structures. Technical regulative in the field of the repair of concrete structures. Examples of the repairs of concrete structures. | | |
| Required Reading: Relevant literature in English TBD | | |
| Weekly Contact Hours: 4 | Lectures: 2 | Practical work: 0 |
| Teaching Methods: Within lectures, students are delivered presentations with photographs, tables, diagrams, formulas and emphasised texts – definitions to provide explanations for the content determined by the syllabus. There are also short thematic films. At auditory practice students are presented with diverse structures where the repair has been performed in order to be better acquainted with possible variations in the repair of concrete elements and structures. Students have an obligation to do a graphic paper with the elaboration and the defence of an idea and procedure for repairing a certain concrete element or structure. All students have an obligatory professional excursion (structures under repair). The examination has an oral part (theoretic and practical). During the semester, the oral examination can be taken as two partial examinations. The examination can be taken in the exam terms. Students who do not take oral part of the examinations via partial examinations are obliged to take the oral examination in the exam term. | | |

| Knowledge Assessment (maximum of 100 points): | | | |
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| Pre-exam obligations | points | Final exam | points |
| Active class participation | | written exam | |
| Practical work | | oral exam | |
| Preliminary exam(s) | | | |
| Seminar(s) | | | |
| The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc. | | | |