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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | **Faculty of Civil Engineering and Architecture** |
| **GENERAL INFORMATION** |
| Study program  | **Civil Engineering** |
| Study Module (if applicable) | Structural engineering |
| Course title | Aseismic designing |
| Level of study | Master’s  |
| Type of course | Elective |
| Semester  | Autumn  |
| Year of study  | 1st |
| Number of ECTS allocated | 5 |
| Name of lecturer/lecturers | Dragan Zlatkov |
| Teaching mode |  Lectures  |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| That students master the basic knowledge of the phenomenon of earthquakes and aseismic design and construction. Basic requirements and guidelines for the application of Eurocode 8. Response spectra and design spectra. Calculation of earthquake-resistant structures. That students can practically apply the acquired knowledge in solving aseismic design and construction. Analysis of the structural behavior of buildings under earthquake load and aseismic design foundation. Seismic calculation methods and evaluation and rehabilitation of existing buildings. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| The phenomenon of earthquakes and seismic terms. Causes and sources of earthquake damage. Contemporary approaches to planning and design of earthquake-resistant buildings. The determination of seismic hazard and risk. Engineering review of records of earthquakes: response spectrum, spectrum project and others. The effect of the earthquake according to Eurocode 8. Seismic-resistant structural systems of buildings. Budget seismic methods of linear and non-linear. The formation of the matrix mass, damping matrix, stiffness matrix and earthquake loads. The importance of the system of integrated soil-foundation and construction. The concepts of isolation and energy dissipation. Seismic safety and reinforcement of existing buildings. New concepts in aseismic design.Practice accompanies lectures and exercise program is the same program of lectures. The exercises are performed numerical examples, a prominent examples of graphic works, graphic works and test tasks. |
| **LANGUAGE OF INSTRUCTION** |
| Serbian (complete course)  |
| **ASSESSMENT METHODS AND CRITERIA** |
| **Pre exam duties** | **Points 30** | **Final exam** | **Points 70** |
| **Activity during lectures** | **10** | **Written examination** | **40** |
| **Practical teaching** |  | **Oral examination** | **30** |
| **Teaching colloquia** | **20** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |