Faculty of Civil Engineering / Master study (III semester)/ **Seismic design of reinforced concrete structures**

Prerequisites:	No prerequisites.
Course aims:	The aim of this course is acquisition of basic knowledge in the field of seismic design of reinforced concrete structures
Name and surname of teacher and assistant	dr Srđan Janković i dr Nikola Baša
Method of teaching and mastering the material	Lectures. Independent working on tasks. Colloquia. Final exam. Consultations.
I week, lecture	1. Principles of design of seismic resistant reinforced concrete structures. Design concepts. Relationship between capacity and ductility - ductility classes of structures.
I week, exercise	1. Principles of design of seismic resistant reinforced concrete structures. Design concepts. Relationship between capacity and ductility - ductility classes of structures.
II week, lecture	2. Seismic behavior of the elements and materials: concrete and steel. Interaction between concrete and reinforcement. Seismic behavior of individual R/C elements: beam, columns, joints and wall
II week, exercise	2. Seismic behavior of the elements and materials: concrete and steel. Interaction between concrete and reinforcement. Seismic behavior of individual R/C elements: beam, columns, joints and wall
III week, lecture	3. Behavior and design of R/C structures of high-rise buildings in seismic areas. Types of R/C structural systems. Behavior factor q for R/C structures. Critical regions in ductile elements.
III week, exercise	3. Behavior and design of R/C structures of high-rise buildings in seismic areas. Types of R/C structural systems. Behavior factor q for R/C structures. Critical regions in ductile elements.
IV week, lecture	R/C frame structures - Modeling. Seismic effects.
IV week, exercise	R/C frame structures - Modeling. Seismic effects.
V week, lecture	R/C frame structures - Application of capacity design. Dimensioning of beams, columns and joints.
V week, exercise	R/C frame structures - Application of capacity design. Dimensioning of beams, columns and joints.
VI week, lecture	R/C frame structures - Detailing. Second order effects. Some specific cases of R/C frames.
VI week, exercise	R/C frame structures - Detailing. Second order effects. Some specific cases of R/C frames.
VII week, lecture	Colloquium I
VII week, exercise	Colloquium I
VIII week, lecture	Structures system with R/C walls - Types of walls. Wall location strategy. Modeling.
VIII week, exercise	Structures system with R/C walls - Types of walls. Wall location strategy. Modeling.
IX week, lecture	Structures system with R/C walls - Cross-section analysis. Finding design seismic effects.
IX week, exercise	Structures system with R/C walls - Cross-section analysis. Finding design seismic effects.
X week, lecture	Structures system with R/C walls - Some specific cases of walls. Walls with openings. Connecting beams. Squad walls.
X week, exercise	Structures system with R/C walls - Some specific cases of walls. Walls with openings. Connecting beams. Squad walls.
XI week, lecture	Dual structural systems - Categories. Modeling and behavior. Torsional effects.
XI week, exercise	Dual structural systems - Categories. Modeling and behavior. Torsional effects.
XII week, lecture	Seismic design of diaphragms.
XII week, exercise	Seismic design of diaphragms.
XIII week, lecture	Seismic design of the foundation structure.
XIII week, exercise	Seismic design of the foundation structure.
XIV week, lecture	Colloquium II
XIV week, exercise	Colloquium II
XV week, lecture	Final exam
XV week, exercise	Final exam
Student responsibilities during classes	Attendance at lectures and exercises, making independent papers, taking colloquia.