Course Unit Descriptor

Study Programme: Civil Engineering			
Course Unit Title: Structural Analysis 2			
Course Unit Code: GG26			
Name of Lecturer(s): Andrija Rašeta, Aleksandra Radujković, Igor Džolev			
Type and Level of Studies: Bachelor 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: 6			
Prerequisites: None			
Course Aims: Obtaining knowledge necessary for the analysis on stress and strain of statically indeterminate line structures due to constant and moveable loads			
Learning Outcomes: Enabling students to calculate and analyse all types of statically indeterminate line girders applied in construction. Acquired knowledge can be used in professional courses and in professional practice.			
Syllabus: Survey of basic equation for linear theory on rods. Classic and matrix formulation. Statically indeterminate girders. Force method: basic system, forming and solving conditional equations, solution control. Calculating displacements. Construction of influential lines for statically unknown forces and cross section forces. Influential lines for displacements. Elastic centroid. Approximate deformation method: basic unknowns, deformation indeterminate girders, forming conditional equations and solution control, influence of moveable loads. Hardy Cross procedure. Symmetric girders. Matrix analysis on line systems: basic notions and basic unknowns. Girders in plane: rod stiffness matrix, reaction vector, base stiffness matrix, transformation matrix, compatibility matrix, conditional equations, contour conditions, knot displacement determination, calculating force at rod ends. Orthogonal frames. Spatial girders. Continual girders. Software application for structural analysis.			
Required Reading: Relevant literature in English TBD			
Weekly Contact Hours: 5	**Lectures:** 3	**Practical work:** 0	
Teaching Methods: Lectures, numerical – graphic practice, consultations. Practice are held in groups, and processed tasks fully follow the lecture content. Condition for taking the exam is positively evaluated individual tasks, as well as the required success at the partial examination or the defended project.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	**Final exam**	points
Project	30	Coloquium exam 1	20 (not obligatory)
		Coloquium exam 2	20 (not obligatory)
		Practical part of the exam - tasks	30
		Oral part of the exam	40
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam,			

project presentation, seminars, etc.