Course Unit Descriptor

Study Programme: Civil Engineering	
Course Unit Title: Theory of line structures 2	
Course Unit Code: 037	
Name of Lecturer(s): Vojnic Purcar Martina	
Type and Level of Studies: Undergraduate academic studies	
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: Strength of Materials 1 and 2, Theory of line structures 1	

Course Aims:

Acquiring necessary theoretical knowledge about the calculation influences by the I order theory of statically indeterminate in-line systems, necessary to analyze the behavior of engineering structures. Acquiring basic knowledge in the field of computer applications in structural analysis.

Learning Outcomes:

The realization of the planned scopes.

Syllabus:

Theory: Opening remarks. Basic assumptions of linear theory (I order theory). System of differential equations of I order theory. Statically determined and indeterminated systems. Calculation of forces in sections. Force method – Terms of balance. Statically indeterminate values. Basic system. Force method – Conditional equation for statically indeterminate values. Influential lines for statically indeterminate values. Reciprocal movement theory. Static kinematic analogy – part 1. Influential lines for statically indeterminate values. Reciprocal movement theory. Static kinematic analogy – part 2. Influential lines for arbitrary static values and displacements of statically indeterminate systems. Examples. Software package TOWER. Graphical interface. Design models, types of structural elements, entering data for: the geometry of girders, materials and loads. Aplication of the program for calculation in-line and surface structures in plane and area. Aplication of the program on the dimensioning of steel, concrete and wooden structures.

Practice: follows theory

Required Reading: M. Djurić: Statika konstrukcija, Građevinska knjiga, Beograd, 1979.

M. Djurić, D. Nikolic: Statika konstrukcija, uticaj pokretnog opterećenja, Naučna knjiga, Beograd, 1990.

M. Djurić: Teorija okvirnih konstrukcija, Građevinska knjiga, Beograd 1972

Weekly Contact Hours: 5	**Lectures: 3**	**Practical work: 2**
Teaching Methods: Lectures, exercises, seminars, consultations		

Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	**Final exam**	points
Active class participation	5	written exam	30
Practical work	5	oral exam	30
Preliminary exam(s)	30	…….	
Seminar(s)			