

Study program:	Civil Engineering		
Level of study:	Undergraduate academic studies		
Course title:	Theory of line structures 2		
Teacher:	Vojnić Purčar Martina		
Course Status:	Compulsory		
Credits (ECTS):	6		
Prerequisite:	Strength of Materials 1, Strength of Materials 2, Theory of Line Structures 1		
Course objective(s):	Acquiring necessary theoretical knowledge about the calculation influences by the First order theory of statically indeterminate line systems, necessary to analyze the behavior of engineering structures. Acquiring basic knowledge in the field of computer applications in structural analysis of constructions.		
Course outcome(s):	The realization of the planned objectives.		
Course Content:			
1 st week	Opening remarks. Basic assumptions of linear theory (first order theory). System of differential equations of the first order theory. Statically determinate and indeterminate systems. Calculation of forces in cross-sections.		
2 nd week	Force method – Terms of balance. Statically indeterminate values. Basic system.		
3 rd week	Force method – conditional equations for indeterminate values for solid girders and truss girders.		
4 th week	First colloquium.		
5 th week	Influential lines for statically indeterminate values. Reciprocal movement theory. Static kinematic analogy – part 1.		
6 th week	Influential lines for statically indeterminate values. Reciprocal movement theory. Static kinematic analogy – part 2.		
7 th week	Influential lines for arbitrary static values and displacements of statically indeterminate girders. Examples.		
8 th week	Second colloquium.		
9 th week	Software package TOWER. Graphic interface.		
10 th week	Calculation models, types of structural elements, entering data for: girder geometry, materials and loads.		
11 th week	Implementation of the software in calculation of linear and surface structures in plane and space.		
12 th week	Application of the software for calculating of steel, concrete and wooden structures.		
13 th week	Software package SAP – part 1		
14 th week	Software package SAP – part 2		
15 th week	Third colloquium.		
Literature:	<ol style="list-style-type: none"> 1. M. Đurić: Statika konstrukcija, Građevinska knjiga, Beograd, 1979. 2. M. Đurić, D. Nikolić: Statika konstrukcija, uticaj nepokretnog opterećenja, Naučna knjiga, Beograd, 1990. 3. M. Đurić: Teorija okvirnih konstrukcija; Građevinska knjiga, Beograd, 1972. 4. Uputstvo za primenu programa TOWER i SAP. 		
Number of hours:			Other classes: 0
Lectures: 3	Exercises: 2	Other forms of teaching: 0	Individual research work: 0
Teaching methods: Lectures, exercises, seminars, consultations			
Evaluation of knowledge (maximum 100 points)			
Pre-exam activities	points	Final exam	points
Activity during the lectures	10	Written exam	20
Activity during the exercises	10	Oral exam	15
Seminar paper (Graphic work, Term paper...)	-	-	-
Colloquia	45		