

Study program: Civil Engineering			
Course: Structural Analysis			
Professor/Assistant: PhD Nenad Stojković / Milan Protić			
Status of course: compulsory			
ECTS credits: 6			
Pre-requisites: none			
Aims of the course:			
The aim of the course is to prepare the student to:			
<ul style="list-style-type: none"> - apply basic principles of shaping the structures according to their behaviour under acting forces; - calculate reactions and internal forces in beams, frames and trusses; - calculate the deformations in CE structures; - analyse the movable loads and draw the influence line diagrams of beams; - use modern software tools to calculate internal forces and deformations in structures; - analyse and discuss the results of the calculation of internal loads and deformations; - develop critical thinking and engineering judgment. 			
Learning outcomes:			
After finishing the course, student will be able to:			
<ul style="list-style-type: none"> - identify statically determinate, indeterminate and unstable structures; - calculate the forces in supports and connections of beams and plane frames; - calculate the member forces in trusses; - calculate internal forces and draw the internal force diagrams in statically determinate structures; - draw the influence line diagrams for the action of movable load in simple and continuous beams; - calculate the deformations in statically determinate structures; - apply engineering principles in order to reduce and limit deformations in structures; - calculate reactions in statically indeterminate structures; - calculate internal forces and draw internal force diagrams of statically indeterminate structures; - perform structural analysis using modern software based on finite element method. 			
Syllabus:			
<u>Theoretical part</u>			
Statical determinacy. Equilibrium equations. Calculation of forces in supports and connections. Internal forces diagrams. Simple beam, overhanging beam. Continuous beam. Cantilever. Plane frames. Trusses. Deformations of plane structures. Statically indeterminate structures. Structural analysis using appropriate software. Production of reports.			
<u>Practical part</u>			
Explanation of worked examples calculated on the basis of theoretical knowledge gained on lectures. Continuous evaluation through solving home assignments.			
Literature:			
<ol style="list-style-type: none"> 1. Hibbeler, R.C., Structural analysis, 8th ed., Pearson Prentice Hall, New Jersey, 2012. 2. Đurić, M., Nikolić, D., Statika konstrukcija, Građevinska knjiga, Beograd, 2008. 3. Spaić, R., Statika – Zbirka zadataka sa izvodima iz teorije, VTS, Niš, 2004. 4. Popović, B., Statika konstrukcija 2, Građevinski fakultet, Niš, 2002. 			
Number of active classes			Other forms of teaching:
Lectures: 2	Practical classes: 3	Laboratory classes: 0	
Teaching methods:			
Interactive classes incl. solving practical examples.			
Grading system (maximum 100 points), grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points.			
Pre-commitments	points	Final exam	points
activity during lectures	10	written exam	30
colloquium(s)	10 + 10	oral exam	20
seminar paper(s)	20		
Sum	50	Sum	50