Course Unit Descriptor

Study Programme: Civil Engineering

Course Unit Title: Stability of in-line strucutres

Course Unit Code: 030

Name of Lecturer(s): Vojnic Purcar Martina

Type and Level of Studies: Undergraduate academic studies

Course Status (compulsory/elective): Compulsory

Semester (winter/summer): winter

Language of instruction: english

Mode of course unit delivery (face-to-face/distance learning): face to face

Number of ECTS Allocated: 5

Prerequisites: -

Course Aims:

Through this course, students are introduced to methods of calculation influences at in-line structures according to the II order theory, and the calculation methods of the critical loads that leads to loss of stability of structures.

Learning Outcomes:

The realization of the planned scopes.

Syllabus:

Theory: The II order theory. Opening remarks. The theory of large deformations. The theory of II order. Linearized theory of II order. The theory of II order of plane rod with constant cross section and a constant axial force. The method of initial parameters. The method of transfer matrices. Integro-differential method. Applying deformation method for calculation system of beams using II order theory – part 1. Applying deformation method for calculation system of beams using II order theory – part 2. Applying finite element method for calculation system of beams using II order theory . Stability of structures. Opening remarks. Static methods at analysis of stability of structures. The method of initial parameters, the method of transfer matrices, integro-differential method. Applying deformation method at analysis of stability in-line structures. Applying finite element method at analysis of stability in-line structures.

Practice: follows the theory

Required Reading: M. Djuric: Stabilnost i dinamika konstrukcija, Građevinski fakultet, Beograd, 1977.

M. Sekulovic: Teorija linijskih nosača, Građevinska knjiga, Beograd 2005.

Weekly Contact Hours: 3	**Lectures: 2**	**Practical work: 1**

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)			