Faculty of Architecture / ARCHITECTURA / PARTICULAR STRUCTURES

Course:	PARTICULAR STRUCTURES			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
4372	Mandatory	7	4	2+1+1
Programs	ARCHITECTURA			
Prerequisites	No prerequisites.			
Aims	Acquiring basic knowledge about design of special structures.			
Learning outcomes	It is expected that the student after passing the exam Special structures: 1. Has knowledge of the constructive systems and is able to evaluate and choose appropriate constructively a constructive solution, as well as the appropriate solution materialization, in accordance with the architectural design; 2. Has the ability to synthetically uses the knowledge of the constructive and special topics, as well as knowledge of current technology in the design process.			
Lecturer / Teaching assistant	Prof. Biljana Šćepanović, Dr-Ing.			
Methodology	Lectures, tutorial and consultations. Semester work.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	The development of structural systems in architecture. Classification, principles of construction, method of election systems.			
I week exercises	The development of structural systems in architecture. Classification, principles of construction, method of election systems.			
II week lectures	Beam systems. Shaping (Full, grid, wall, frame and prestressed systems).			
II week exercises	Beam systems. Shaping (Full, grid, wall, frame and prestressed systems).			
III week lectures	Beam grills. Orthogonal and orthogonal nets, hanging and supporting with pitched elements.			
III week exercises	Beam grills. Orthogonal and orthogonal nets, hanging and supporting with pitched elements.			
IV week lectures	Arched systems. Shaping variable cross-section arches, arches made of prefabricated elements.			
IV week exercises	Arched systems. Shaping variable cross-section arches, arches made of prefabricated elements.			
V week lectures	Frame systems. Non prestressed and prestressed frames. Assemblies with diaphragms.			
V week exercises	Frame systems. Non prestressed and prestressed frames. Assemblies with diaphragms.			
VI week lectures	Analyses of the high buildings and large span structures. Mandatory contribution per semester project.			
VI week exercises	Analyses of the high buildings and large span structures. Mandatory contribution per semester project.			
VII week lectures	1st TEST (colloquium)			
VII week exercises	1st TEST (colloquium)			
VIII week lectures	Hanging construction. Non prestressed and prestressed cable structures and contours.			
VIII week exercises	Hanging construction. Non prestressed and prestressed cable structures and contours.			
IX week lectures	Hanging structures of circular and polygonal, open and closed networks and tents.			
IX week exercises	Hanging structures of circular and polygonal, open and closed networks and tents.			
X week lectures	Special structures: Tensegrity structures. Stretching structure. Pneumatic structures.			
X week exercises	Special structures: Tensegrity structures. Stretching structure. Pneumatic structures.			
XI week lectures	Three-dimensional systems. Stick systems of two, three or four directions, the nodal connections.			
XI week exercises	Three-dimensional systems. Stick systems of two, three or four directions, the nodal connections.			
XII week lectures	The development of spatial structures. Classification, principles of construction, method of election systems.			
XII week exercises	The development of spatial structures. Classification, principles of construction, method of election systems.			

XIII week lectures	Geometrical basis of spatial structures. Plato and Archimedes polyhedron.
XIII week exercises	Geometrical basis of spatial structures. Plato and Archimedes polyhedron.
XIV week lectures	2nd TEST (colloquium)
XIV week exercises	2nd TEST (colloquium)
XV week lectures	Discussion of tests and assignments. Summary of semester.
XV week exercises	Discussion of tests and assignments. Summary of semester.
Student workload	Weekly 4.0 credits x 40/30 = 5 hours and 33 minutes Structure: 2 hours of lectures 2 hours of tutorial 1 hours and 33minutes of individual work, including consultations

Per week	**Per semester**
4 credits x 40/30=5 hours and 20 minuts 2 sat(a) theoretical classes 1 sat(a) practical classes 1 excercises **1 hour(s) i 20 minuts** of independent work, including consultations	Classes and final exam: **5 hour(s) i 20 minuts x 16 =85 hour(s) i 20 minuts** Necessary preparation before the beginning of the semester (administration, registration, certification): **5 hour(s) i 20 minuts x 2 =10 hour(s) i 40 minuts** Total workload for the subject: **4 x 30=120 hour(s)** Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) **24 hour(s) i 0 minuts** Workload structure: **85 hour(s) i 20 minuts (cources), 10 hour(s) i 40 minuts (preparation), 24 hour(s) i 0 minuts (additional work)**
Student obligations	
Consultations	
Literature	Basic literature: 1. Nestorović M.: Konstruktivni sistemi – principi konstruisanja i oblikovanja, Arhitektonski fakultet Univerziteta u Beogradu, Beograd, 2000. Additional literature: 2. Svi udžbenici iz oblasti arhitektonskih i građevinskih konstrukcija
Examination methods	Assessments are conducted continuously throughout the semester and the final exam. During the semester, a student can earn max 100 points. It is estimated as follows: - Semester assignment: 40; - Tests: 2 x 30 = 60; - Final exam: 50. Each test and the final exam are done in written form. Passing grade is obtained if at least 50 points are collected.
Special remarks	
Comment	

Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points