

Faculty of Civil Engineering / CONSTRUCTION / CONCRETE BRIDGES

Course:	CONCRETE BRIDGES			
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exercises+Laboratory)
11903	Mandatory	3	5	2+1+1
Programs	CONSTRUCTION			
Prerequisites	Course is not conditioned.			
Aims	Through this subject, knowledge is acquired in the field of designing and building concrete bridges			
Learning outcomes	After passing the course, the student can: 1. independently prepare the disposition of the concrete bridge 2. recognize different bridge construction technologies 3. perform a numerical load analysis and create a computational model of a girder bridge 4. Design bridge elements of the bridge 5. Examines the problems of bridge durability and maintenance			
Lecturer / Teaching assistant	Assist. Professor Nina Serdar			
Methodology	Lectures, exercises, consultations and independent work.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Introduction. Historical development of construction, general concepts and definitions related to concrete bridges.			
I week exercises	Description of the method of preparation of semester work. Bridge plans.			
II week lectures	Bridge project - levels of design. Contents of the bridge construction project. Criteria for evaluation of variant solutions.			
II week exercises	Work on bridge plans.			
III week lectures	Loads of road bridges Part I			
III week exercises	Structural design - Load analysis - Part I			
IV week lectures	Loads of road bridges Part II			
IV week exercises	Structural design - Load analysis - Part II			
V week lectures	Actions during bridge construction. Traffic loads of railway bridges.			
V week exercises	Bridge modelling			
VI week lectures	Basics of design. ULS and SLS			
VI week exercises	Bridge modelling			
VII week lectures	Design, structural details and execution of bridge deck : plate, ribed and box cross-sections			
VII week exercises	Bridge modelling			
VIII week lectures	Prestressing of concrete bridges.			
VIII week exercises	Design calculation: deck			
IX week lectures	Seismic design of concrete bridges.			
IX week exercises	Design calculation: deck - prestressing			
X week lectures	Design structural details and execution of columns and abutments			
X week exercises	Design calculation: columns and foundation			
XI week lectures	BoQ			
XI week exercises	Design calculation: abutments, expansion joints and bearings			
XII week lectures	Causes of bridge collapse. Maintenance of concrete bridges and management system. Reconstruction of bridges.			
XII week exercises	Test			
XIII week lectures	Construction technology of execution for concrete bridges (method of fixed, portable and mobile scaffolding, incremental launching)			
XIII week exercises	BoQ			

XIV week lectures	Construction technology of execution for concrete bridges (prefabricated structures, segmental bridges, construction of arched bridges)					
XIV week exercises	Students assignments check					
XV week lectures	Interactive class and work in groups.					
XV week exercises	Supplementary class.					
Student workload	Weekly 5 credits x 40/30 = 6.67 hours Structure: 2 hours of lectures 2 hours of computational exercises 2.67 hours of independent work, including consultations					
Per week			Per semester			
5 credits x 40/30=6 hours and 40 minuts 2 sat(a) theoretical classes 1 sat(a) practical classes 1 excercises 2 hour(s) i 40 minuts of independent work, including consultations			Classes and final exam: 6 hour(s) i 40 minuts x 16 =106 hour(s) i 40 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 6 hour(s) i 40 minuts x 2 =13 hour(s) i 20 minuts Total workload for the subject: 5 x 30=150 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) 30 hour(s) i 0 minuts Workload structure: 106 hour(s) i 40 minuts (courses), 13 hour(s) i 20 minuts (preparation), 30 hour(s) i 0 minuts (additional work)			
Student obligations			Students are required to attend classes (lectures and exercises), take colloquiums and do semester work independently.			
Consultations			Assit. Prof. dr Nina Serdar room 122			
Literature			B.Pavićević; »Mostovi«, autor M. Pržulj; Tehničke smjernice za javne ceste - objekti na cestama Slovenije - SODOC, »Konstruiranje mostova«, »Mostovi«-Jure Radić			
Examination methods			Semester work max 15 points - Colloquium max 25 points - Final exam max 60 points - A 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