

Course title: Design of Concrete Bridges

Course Basic Information	
Academic Unit:	Faculty of Civil Engineering
Course title:	Design of Concrete Bridges
Level:	Master
Course Status:	Elected
Year of Study:	II Year - III semester
Number of Classes per Week:	2+3
ECTS Credits:	6
Time /Location:	According announced schedule
Teacher:	Prof.asoc.Dr. Cenë Krasniqi
Contact Details:	e-mail: cene.krasniqi@uni-pr.edu
Course Description:	
Course Description:	<p>Subject: Design of concrete bridges includes: History of concrete bridges to the present day, types and characteristics in function of construction stages The design phases of a bridge as well as the parameters which determine the optimal solutions. As well as the elements of the general provision, the main elements of the bridge will be interpreted, calculated and dimensioned.</p>
Course Goals:	
Course Goals:	<p>Knowledge of reinforced concrete bridges from their begin as well as those of modern times. To be inform all the elements of a bridge their function and application. After description the loads combinations , the calculation theories will be analyzed as well as the dimensioning of the characteristic elements of the bridge. There will also be an analysis of optional solutions of different cases as well as the evaluation of the optimal solution of the concrete case, either for concrete elements or structure as a whole.</p>
Expected Learning Outcomes:	
Expected Learning Outcomes:	<p>Upon completion of this course students must have the skills to:</p> <ol style="list-style-type: none"> 1. To be able to propose some conceptual variants for a task - given case. 2. To know how to master cross-section with all the necessary elements for operation. 3. To decide which combinations of loads to apply and to make the transverse distribution of loads on the acquired structure. 4. To analyses the static and dynamic calculation as well as to dimension the railings, the soles of the pedestrian path. the console. 5., To do the static and dynamic calculation for the reinforced slab in one and in two directions as well as the transverse beams with one field and with 2 and more fields. 6. To make the static calculation of the main beam (ribbed or multi-beam slat) through the impact lines as a simple continuous beam or Gerber as well as the dimensioning of their representative cuts

	<p>7. To understand the principles of dimensional support of neoprene supports and make the acquisition of the type of supports based on the predicted loads and deformations</p> <p>8 To do the calculation and dimensioning of the .and how to master the expansion joints</p> <p>9. To do the static and dynamic calculation you are a middle pillar with all its elements</p> <p>10 To do the static and dynamic calculation of the coastal pillars (massive, in filling or boxes) as well as the hatred curves.</p> <p>11. To describe the construction phases for the given case, the necessary mechanism and equipment as well as to predict the dynamic execution plan</p>
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Student Workload (should be in compliance with student's Learning Outcomes)

Activity	Hours	Day/ Week	Total
Lectures	2	14	28
Theory/ Lab Work/Exercises	1	14	14
Practical Work	1	14	14
Consultations with the teaher	1	14	14
Field Work	5	1	5
Test, seminar paper	1	14	14
Homework	0.5	14	7
Self-study (library or home)	1	15	15
Preparation for final exam	5	1	5
Assessment time (test, quiz, final exam)	6	1	6
Projects, presentations, etc.	2	14	28
Total			150

Teaching Methods:	Lectures, site visits and active individual work - design of a bridge under the supervision of a professor
Assessment Methods:	<p>The evaluation will be done mainly during lections</p> <p>In these cases, the evaluation will be done as follows:</p> <p>Regular attendance: 10%</p> <p>Participation in site visits 5%</p> <p>Active participation in consultations 15%</p> <p>Projects - semester work 40%</p> <p>Final exam 30%</p> <p>Total 100%</p>
Primary Literature:	<p>1 Cene Krasniqi / authorized lectures</p> <p>2 Shaban Perjuci Concrete Bridges (dispenca)</p>
Additional Literature:	<p>1.B.Çeku, P. Çerepi, E.Gjadri-- Bridges and tunnels</p> <p>2. Jure Radic - Massive bridges (masivni Mostovi)</p> <p>3.Jure Radic – konstruiranje mostova</p> <p>3.Christian Menn Shtahlbeton-brucken</p> <p>4.Eurocode 1 Part 2:</p> <p>5.Eurocode 2 Part</p>

Designed teaching plan	
Week	Title of the Lecture
Week 1:	Repetition of the main elements from the subject of bridges.
Week 2:	Bridges visibility analysis, determination of the length and width of obstacles - conditions during design
Week 3:	Analysis of the predicted length, as well as length - cross-section coordination of the bridge
Week 4:	Taking the case study. Analysis and possible proposal I min. three variants for the given task
Week 5:	Acquisition and reasoning of the acquired variant
Week 6:	conceptual design, acquisition of all elements and dimensions provided
Week 7:	Calculation and acquisition of handrails, footpaths, and console
Week 8:	Acquisition of the load scheme. Transverse redistribution of loads to the slab , ribbed system with 2 or 3 beams as well as many beams
Week 9:	Static calculation and dimensioning of reinforced slabs in one direction, in two directions, as well as transverse beams with one and many fields.
Week 10:	Construction of impact lines for the main beam (M, T) as well as reactions in the support - pillar
Week 11:	Static calculation of the dimensioning of the main beams in the characteristic cuts of a superstructure
Week 12:	Analysis of accounts during the construction phases, some characteristic cases of construction in phases - combinations
Week 13:	Calculation of middle pillars, capital, body, and foundations
Week 14:	Calculation of massive banknotes, in filling as well as box piles. Calculating the overrun pole
Week 15:	Prediction of deformations (shrinkage, concrete flow, temperature changes). Acquisition of joints, acquisition and calculation of neoprene supports

Academic Policies and Code of Conduct
Regular attendance of lectures, coming on time and keeping quite in the lesson. Open discussion on the subject, free expression of personal opinions on solutions as well as acceptance of other opinions. Use of electronic devices only if they are in service of the subject, etc.). During the solutions the student should take the initiative and propose and justify the solutions for the task and the obstacles which are given based on the knowledge from the previous lectures and literature. The tasks will be analyzed and evaluated by the group colleagues to develop a variety of solutions and critical thinking about solutions presented.