

## COURSE DESCRIPTION

<b>Name of the Course:</b>		<b>CONCRETE STRUCTURES FOR TRANSPORT INFRASTRUCTURE</b>						
<b>Specialization Code:</b>		<b>U02.07.ICV.IZ.M24.</b>		<b>Course Code:</b>		<b>2.DS.OP04</b>		
<b>Year of study:</b>	<b>1</b>	<b>Semester:</b>	<b>2</b>	<b>Examination form:</b> (E-Exam; Co- Colloquy; P-Project; P/F-Passed/Failed)	<b>E</b>	<b>ECTS credits granted (CR):</b>	<b>E (Co)</b>	<b>6</b>
					<b>P</b>		<b>P (P/F)</b>	
<b>Course Category:</b> (DF- Fundamental; DD- General engineering; DS-Specialty engineering; DC-Complementary; PR-Practical stage)								<b>DS</b>
<b>Course Type:</b> (OB-Compulsory; OP-Elective; FC-Facultative)								<b>OP</b>
<b>Number of hours per semester:</b> Total of hours per week (TH) x Number of weeks per semester								
<b>TOTAL :</b>	112	<b>Individual study (IS):</b>		56	<b>Contact hours (C + S;L;P):</b>			56
<b>Academic staff member in charge:</b> (Full name, Academic position and Department)				Prof. dr. eng. Florin Burtescu				

Faculty	Engineering in foreign languages Master study programme	Number of contact hours per semester				
		Total	Course	Seminar	Laboratory	Project
Field	Civil Engineering	56	28	-		28
Specialization	Structural Engineering					

**Course objectives - Description of the main competences:** Conceiving, design and build fundamental principles for performance prestressed concrete structure for road and rail bridges.

**Content description:**

**1. COURSE**

**Course (28 hours)**

**Chapter 1 (6 hours)**

**1. Continuous beam bridges**

- 1.1. Structure;
- 1.2. Conceive and dimension prestressed concrete, steel or mixed decks;
- 1.3. Static and dynamic behaviour of continuous beams bridge;
- 1.4. Construction methods of continuous beams bridge.

**Chapter 2 (8 hours)**

**2. Integral bridge**

- 2.1. Integral prestressed concrete bridges structure;
- 2.2. Deck conceive and dimension;
- 2.3. Static and dynamic behaviour of integral bridges;
- 2.4. Cantilever construction of integral bridges;
- 2.5. Bearing conceive and deck stability during construction.

**Chapter 3 (8 hours)**

**3. Arch bridge**

- 3.1. Arch bridge with carriage way on top;
- 3.2. Structure;
- 3.3. Arch bridge calculation;
- 3.4. Arch bridge construction.

**Chapter 4 (6 hours)**

**4. Bridge infrastructures conceive and design for high seismic areas.**

- 4.1. General conceive and design principles;
- 4.2. Static and dynamic analysis;
- 4.3. Different structures ductility;
- 4.4. Infrastructures static and dynamic properties analysis using numerical simulations;
- 4.5. Design methods and structural details specified in advanced design norms.

<b>2. Seminar / Laboratory / Project / Practical stage</b>	<b>PROJECT (28 hours)</b> Road bridge, continuous beam type on three spans, prefab elements cantilever construction.
<b>3. Bibliography</b>	

<b>Criteria to be considered for the final mark</b>	<b>Weight of each criterion in the final mark (%)</b>
1. Exam defence (final examination)	50
2. Appreciation during the entirely semester	
2.1 Seminar activity	
2.1 Laboratory activity	
2.2 Project activity (the project has not a distinct final mark)	
3. Periodical examinations	
3.1 Written / oral examination	
3.2 Home works, reports, essays etc.	50
4. Other criteria (to be specified)	
Final practice evaluation method:	
<ul style="list-style-type: none"> <li>For the course 3 tests in 5<sup>th</sup>, 9<sup>th</sup>, and 13<sup>th</sup> week. Every test has 3-4 questions from the lectured chapters. The course attendants have the manuscript and the additional bibliography. The tests grade average represents 50% of final colloquy grade.</li> <li>Project will be graded along in 4<sup>th</sup>, 8<sup>th</sup> and 12<sup>th</sup> week. Grades average will represent 50% of final project grade.</li> </ul>	

<b>Estimation of the total number of hours per semester requested for the individual study (IS)</b>			
Type of individual activity	No. of hours	Type of individual activity	No. of hours
1. Study of the course notes	12	8. Preparation of the final examination	
2. Study of the compulsory bibliography		9. Advisory class participation	4
3. Study of the supplementary bibliography	6	10. Practical documentation on site	
4. Preparation of specific activities	20	11. Additional documentation on library	
5. Preparation of home works		12. Internet network documentation	2
6. Preparation of periodical written examinations	12	13. Others (to be specified)	
7. Preparation of periodical oral examinations		<b>TOTAL number of hours</b>	<b>56</b>

**Date:**  
15.03.2013

**Signature of the Academic Staff member in charge:**  
*Florin Burtescu*