COURSE DESCRIPTION

Name of the Course:	**STEEL STRUCTURES FOR TRANSPORTATION INFRASTRUCTURE**							
Specialization Code:	**U02.07.ICV.IZ.M24.**			**Course Code:**	**2.DS.OP07**			
Year of study:	**1**	**Semester:**	**2**	**Examination form:** (**E-**Exam; **Co-** Colloquy; **P-**Project**; P/F-**Passed/Failed)	**E**	**ECTS credits granted (CR):**	**E (Co)**	**6**
					P		**P (P/F)**	
Course Category: (**DF**- Fundamental; **DD**- General engineering; **DS**-Specialty engineering; **DC**-Complementary; **PR**-Practical stage)								**DD**
Course Type: (**OB**-Compulsory**; OP**-Elective**; FC**-Facultative)								**OP**
Number of hours per semester: Total of hours per week (TH) x Number of weeks per semester								
TOTAL :	112	**Individual study** (IS)**:**		56	**Contact hours (C + S;L;P):**			56
Academic staff member in charge: (Full name, Academic position and Department)		*Conf.dr.ing. IONUŢ RADU RĂCĂNEL*						

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

Course objectives - Description of the main competences: The study of the particular aspects in design and practice for unconventional composite structures: bridges with ortthotropic decks, curved bridges, skew bridges

Content description:

1. COURSE

1. COURSE (28 hours)

1.1. Structures with orthotropic decks (12 hours)

- Particular aspects in design and practice for railway and road bridges with orthotropic decks
- Assurance against local and general buckling phenomena
- Assurance against damages produced by fatigue
- The use of Eurocode3 - Part 2: Bridges for the design of orthotropic decks

1.2. Bridges structures under torsion (10 hours)

- Actions producing torsion
- Torsional strength
- Uniform torsion (St. Venant)
- Non uniform torsion
- Mixed torsion
- The effect of structure curvature. Static calculation of curved beams. Simplified methods for calculation of curved bridge decks.Closed and open bridges cross sections. Stability against overturning. Type and ditribution of bearings for curved bridge decks.
- The effect of skew bearings. Static calculation of structures with skew bearings.

1.3. Systems used for spatial interaction of bridges (6 hours)

- Truss systems
- Systems with boxed cross beams
- Systems with diaphragms

2. Seminar / Laboratory / Project / Practical stage

PROJECT (28 hours)

The design of a railway bridge with orthotropic deck.

3. Bibliography	

Criteria to be considered for the final mark	**Weight of each criterion in the final mark (%)**
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	50%
3.2 Home works, reports, essays etc.	
4. Other criteria (to be specified)	

Short description of the final evaluation procedure:

- For course a test is forseen in seven-th week. The test consits in 3-4 questions concerning the theory explained in each course. The students use for the test the manuscriot and the bibliography. The final mark is averagge of the marks obtained at the final examination and at the test.
- For the project, a periodical examination is used in the weeks 4, 8 and 12. For the students having more than 2 absences or marks at the periodical examination marks < 5 the priject will be eavluated by a comission established by the department in the week 14.

Estimation of the total number of hours per semester requested for the individual study (IS)				
Type of individual activity	No. of hours		Type of individual activity	No. of hours
1. Study of the course notes	14		8. Preparation of the final examination	
2. Study of the compulsory bibliography	6		9. Advisory class participation	10
3. Study of the supplementary bibliography			10. Practical documentation on site	
4. Preparation of specific activities	10		11. Additional documentation on library	
5. Preparation of home works			12. Internet network documentation	6
6. Preparation of periodical written examinations	10		13. Others (to be specified)	
7. Preparation of periodical oral examinations			**TOTAL number of hours**	56

Date:
March 2013

Signature of the Academic Staff member in charge:
IONUȚ RADU RĂCĂNEL