Course title: Concrete Structures Principles

Basic information on the subject			
Academic unit:	**Faculty of Civil Engineering**		
Subject title:	**Concrete Structures Priciples**		
Level:	**Bachelor**		
Subject status:	**Compulsory**		
Year of studies:	**third (III), fifth (V) semester**		
Number of classes in a week:	**2+2**		
Amounts of credits - ECT:	***6 ECTS***		
Time / location:	**According to the Timetable**		
Subject teacher:	**Prof.ass.Dr Kadri Morina**		
Contact Details:	**Email:** kadri.morina@uni-pr,edu www.fn.uni-pr.edu		
Description of the subject:	The course provides basics on knowledge, use, examination, and design of concrete and reinforcement as basic materials in construction. Students shall have information on physical-mechanical properties of concrete and reinforcement, design of cross sections subject to bending, axial loads, both tension and compression, T section, transverse loading, punching, and torsion.		
Objectives of the subject:	The objective of the subject Basics of Concrete Structures consists on providing knowledge to students in concrete as a most important material in construction having in mind that the knowledge of concrete out of which various engineering buildings are constructed from is a requirement and a necessary condition for the designer and for the constructor of any building in the engineering practice. Within this subject the student will gain the basic information on the procedures for calculation various sections subject to all possible static loading and on the ways of reinforcement, at the same time the subject serves as basis for the subsequent subjects dealing with concrete structures.		
Expected results in learning:	Students will have an acknowledgement the: - interaction between concrete and steel, working and design diagrams of concrete and steel. - design of rectangular cross section, T section, due to bending moments, - design of cross section subject to axial force in compression, tension, - design of a section subject to axial force in compression, tension, - design under shear loading, punching, and torsion, - construction and placement of reinforcement for the design cases.		
Load contribution on student (which shall correspond with the student learning achievement)			
Activity	**Classes**	**Days/weeks**	**Total**

Lectures	2	15	30
Exercises / laboratory work	2	15	30
Practical work			
Contacts with lecturer / consultancy	1	3	3
Field exercises			
Interim tests, seminars	3	2	6
Home work	2	15	30
Time for individual studying (at a library of home)	2	15	30
Preparing for final exam	2	2	4
Time spent for evaluation (tests, quizzes, final exam)	4	2	8
Projects, presentations, etc.	1	9	9
Total			**150**

Teaching methodology:	*Teaching methods, regular intensive combinations (lectures 15 weeks, exercises 15 weeks) – combined with presentations, video beames.* *-exercises with individual semestral works.*
Assessment methods:	*assesment methods:* *First test: 10%* *Second test 10%* *Semestral project 15%* *Attendance 5%* *Written exam 30%* *Oral exam 30%*
Literature	
Basic Literature:	*- Basics of Concrete Structures, script, K. Morina , H. Sylejmani dhe N. Hoxha* *- EC 1, EC 2.*
Additional Literature:	*Ivan Tomičić*: Concrete Structures, Zagreb, *K.* Negovani and N. Verdho, Reinforced Concrete Structures, Tirana, Andrej Spasov : Kconcrete Structures, Skopje

Teaching plan design:	
Week	**Lectures to be developed**
Week one:	*Subject introduction, history of development of reinforced concrete, advantages and disadvantages*
Week two:	*Physical-mechanical properties of concrete, deformations in concrete due to creep and shrinkage, timedependant, etc.*
Week three:	*Physical-mechanical properties of reinforcement, bending, splicing, etc.*
Week four:	*Work diagram and design diagram of concrete and reinforcement.*
Week five:	*Design based on permissible stress.*
Week six:	*Ultimate limit state.*
Week seven:	*Design of rectangular cross section singly and doubly reinforced*
Week eight:	*Design of T section subject to bending moment.*
Week nine:	*Design of cross section subject to tension force.*
Week ten:	*Design of cross section axial compression case with longitudinal*

	reinforcement and with spiral reinforcement.
Week eleven:	*Design of section under axial eccentric force, big and small eccentricity.*
Week twelve:	*Desing of element subject to shear, of constant height.*
***Week thirteen*:**	*Design of elements of various height subject to shear force.*
Week fourteen:	*Design subject to punching*
Week fifteen:	*Design subject to torsion.*

Academic policies and code of conduct:
Regular attendance of lectures and exercises *Presentation equipment: Laptop; Widobeam, Table, etc.* *Independent work in laboratory exercises, or in small groups* *Etiquette and rules of conduct according to the Code of Ethics*