Меѓународен Универзитет Визион - International Vision University
Universiteti Ndërkombëtar Vizion - Uluslararası Vizyon Üniversitesi

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DERS İZLENCESİ (SYLLABUS)

COURSE NAME	COURSE CODE	SEMESTER	COURSE LOAD	ECTS
CONCRETE AND REINFORCED CONCRETE STRUCTURES	**3029**	**5**	**180**	**6**

Prerequisite(s)	None

Course Language	Turkish
Course Type	Elective
Course Level	First Cycle
Course Lecturer	
Course Assistants	
Classroom	
Extra Curricular Office Hours and Location	

Course Objectives	The aim of this course is to provide the students with knowledge about physical and mechanical properties of concrete and its components; fundamentals of reinforced concrete design, the behavior of reinforced concrete, explaining the structural (flexural and shear) design of beams (simply reinforced, double-reinforced and T-beams in pure bending) and columns (axially and eccentrically loaded) and also to associate and integrate these concepts with architectural design applications.
Course Learning Outcomes	- Understanding properties and structural behavior of concrete and reinforced concrete - Learning the design and analysis methods of reinforced concrete structural elements - Realizing advantages and disadvantages of reinforced concrete structures for architectural design - Using given knowledge effectively and practically in designing and dimensioning of reinforced concrete elements by considering code provisions - Producing appropriate solutions with regarding to architectural design and characteristics of structural systems
Course Contents	Introduction, Concrete and steel, Loads and loads effects, Structural systems, Structural irregularities, Slabs, Beams, Columns, Footings

WEEKLY SUBJECTS AND RELATED PREPARATION STUDIES

Week	Subjects	Related Preparation
1	Concrete: Introduction, historical background, definitions and fundamental concepts, component properties, aggregate, cement, water. Introduction of physical and mechanical properties of concrete. Time-variant deformations of concrete: Shrinkage and creep. Bond. Reinforcing steel and its mechanical properties	Related Chapters of Course Sources
2	Reinforced concrete: Definitions. Fundamental principles and methods in design. Material and load factors. Load combinations. Structural safety. Analysis of axially loaded columns. Behavior of tied and spiral columns. Short column concept.	Related Chapters of Course Sources
3	Ultimate load capacity of tied and spiral columns. Code provisions related with dimensions and reinforcement of columns. Numerical examples.	Related Chapters of Course Sources
4	Simple (pure) bending of beams. Introduction, basic concepts and assumptions. Behavior of a beam under increasing bending moment. Failure types: Under-reinforced beam (tension failure), balanced beam (balanced failure) and over-reinforced beam (compression failure).	Related Chapters of Course Sources
5	Simply reinforced rectangular beams. Ultimate Load Capacity Design and analysis. Derivation of equations related with ultimate capacity of simply reinforced rectangular beams. Numerical examples.	Related Chapters of Course Sources
6	Analysis and design of double-reinforced beams. Derivation of equations related with ultimate capacity of double - reinforced rectangular beams. Numerical examples.	Related Chapters of Course Sources
7	Mid-term Exam	Related Chapters of Course Sources
8	T- beams: Introduction, definitions and basic concepts. Analysis and design of T-beams. Numerical examples.	Related Chapters of Course Sources
9	Eccentrically loaded columns: Introduction and basic concepts. Eccentricity, slenderness and short column concepts. Ultimate capacity of eccentrically loaded rectangular columns. Balanced failure state. Numerical examples.	Related Chapters of Course Sources
10	Ultimate capacity of eccentrically loaded rectangular columns: States of tension and compression failures. Numerical examples. Nondimensional interaction diagrams: Concept, description and properties. Numerical examples.	Related Chapters of Course Sources

11	Shear effect in beams: Introduction, diagonal tension and shearing capacity concepts. Types of shear reinforcement. Calculation of ultimate capacity of a beam with shear reinforcement. Numerical examples.	Related Chapters of Course Sources
12	According to the design of shear beam. Shear reinforcement calculation and constructive reinforcement. Numerical applications.	Related Chapters of Course Sources
13	Reinforced Concrete Slab Systems	Related Chapters of Course Sources
14	Foundations: code requirements, behaviors of foundations for different soil conditions	Related Chapters of Course Sources
15	Final Exam	Related Chapters of Course Sources

ECTS / WORKLOAD TABLE

Presentation / Seminar			
Hours for off-the-classroom study (Pre-study, practice)	14	3	42
Midterm Exam	1	12	12
Final examination	1	14	14
Total Work Load			
ECTS	**6**		

GENERAL PRINCIPLE RELATED WITH COURSE

Dear students,

You need to be included in the flow, please follow the course of learning and using that to achieve our success you deserve, you need to practice every day on topics that are covered by the course. It takes practice reading basic and auxiliary literature that is strictly recommended. You should visit classes course I need to make an effort to visit all the professors' lectures. Your activity on the session will be assessed by your professors and the Battle active participant in the discussions that will take place during the time. Students visiting lectures for all at the end if an additional 15 points.

SOURCES

COMPULSORY LITERATURE		
No	**Name of the book**	**Author's Name, Publishing house, Publication Year**
1	Betonarme I -Ayrıntılı Örnekleriyle,	Orbay, A., Birsen Yayınevi (2005), İstanbul.
2	Reinforced Concrete Structures,	Park, R.,Paulay, T., Wiley 1975
3		

ADDITIONAL LITERATURE		
No	**Name of the book**	**Author's Name, Publishing house, Publication Year**
1	Betonarme Yapıların Hesap ve Tasarımı.	Doğangün A, (2009), , Birsen Yayinevi, 856 sayfa
2	Reinforced Concrete Fundamentals	Ferguson, P.M., Breen, J.E., Jirsa, J.O., Wiley, 1988,
3	Г.Мијоски	Скрипта:Инфраструктурни објекти - основи ФПТН, 2011

EVALUATION SYSTEM

Underlying the Assessment Studies	NUMBER	PERCENTAGE OF GRADE
Attendance/Participation	14	%15
Project / Event	1	%15
Mid-Term Exam	1	%35
Final Exam	1	%35
TOTAL	**14**	**%100**

ETHICAL CODE OF THE UNIVERSITY

In case students are cheating on exams or preparation the same, it is not making reference to the source to be used in studies, as for example in assignments, projects and presentation (plagiarism), in accordance with legislations by Ministry of Education and Science of the Republic of Macedonia and İnternational Vision University, apply relevant disciplinary rules. İnternational Vision University students are expected never attempts in this kind of behavior.