



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

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### SYLLABUS

COURSE NAME	COURSECODE	SEMESTER	COURSE LOAD	ECTS
MODELING TECHNIQUES OF CONSTRUCTION STRUCTURES	CIV-4008	8	180	6

<b>Prerequisite(s)</b>	None
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<b>Course Language</b>	Macedonian, Turkish, English
<b>Course Type</b>	Required
<b>Course Level</b>	First Cycle
<b>Course Lecturer</b>	
<b>Course Assistants</b>	
<b>Classroom</b>	
<b>Extra-Curricular Office Hours and Location</b>	<b>Meeting:</b> <b>Consultancy:</b>

<b>Course Objectives</b>	To teach the calculation of 2D and 3D structural systems for different load states (fixed, moving, wind, earthquake, temperature and other) and combinations, evaluation of results, detection, and elimination of modeling errors with the help of a building analysis program working with finite element technique such as SAP and/or ETABS. .
<b>Course Learning Outcomes</b>	The student learns about structural system and structural system elements. The student learns about the calculation algorithm with the help of a package program under the effect of constant loads of planar systems. The student learns about the calculation algorithm of spatial systems under the effect of constant external loads with the help of a package program. The student learns about the calculation algorithm with the help of the package program under the effect of constant external loads of the basic carrier systems. The student learns about the calculation algorithm with the help of a package program for dynamic loads.
<b>Course Contents</b>	Use of software in civil engineering, basic assumptions in system modeling, modeling of shear-frame systems, idealizations, matrix displacement method and finite element method (summary), nodal point and elements, degrees of freedom, internal forces and positive aspects in shell and frame elements, SAP Graphic environment of the 2000 program, description of the menus, creating a new model or additions to the existing model, applications.

## WEEKLY SUBJECTS AND RELATED PREPARATION STUDIES

<b>Week</b>	<b>Subjects</b>	<b>Related Preparation</b>
1	The use of a package program, the points to be considered in using a package program, the assumptions applied in the modeling of the building elements	Related Chapters of Course Sources
2	Curtain systems and their modelling, finite element method (summary), matrix displacement method (summary)	Related Chapters of Course Sources
3	Degree of freedom, rigid diaphragm model, joint and elements, frame end forces and positive directions, shell internal forces and positive directions	Related Chapters of Course Sources
4	Graphical screen of the SAP2000 program and short explanations, menus, frequently used commands in the menus	Related Chapters of Course Sources
5	Detailed information about commands and their short applications	Related Chapters of Course Sources
6	Application I: Plane frame; solution under different loads	Related Chapters of Course Sources
7	Application II: Plane floor frame; load positions, load combinations that will give the most unfavorable section effects	Related Chapters of Course Sources
8	MIDTERM EXAM	Related Chapters of Course Sources
9	Application III: Planar truss system	Related Chapters of Course Sources
10	Application IV: Spatial truss system	Related Chapters of Course Sources
11	Application V: Spatial frame system; solution under static and dynamic loads, evaluation of results	Related Chapters of Course Sources
12	Application VI: Spatial frame system; Solution under static and dynamic loads, evaluation of results, Raft foundations	Related Chapters of Course Sources
13	Application VII: Modeling of 3D multi-stored structures, solution under static and dynamic loads	Related Chapters of Course Sources
14	Application VII: Modeling of 3D multi-stored structures, solution under static and dynamic loads	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
<b>Total Work Load</b>			
<b>ECTS</b>		<b>6</b>	

**GENERAL PRINCIPLE RELATED WITH COURSE**

Dear students,

In order to be included, learn and achieve full success that you deserve in the courses you need to come well prepared by reading the basic and secondary textbooks. We are expecting from you carefully to obey to the course hours, not to interrupt the lessons unless is very indispensable, to be an active participant on the courses, easily to communicate with the other professor and classmates, and to be interactive by participating to the class discussions. In case of unethical behavior both in courses or on exams, will be acting in framework of the relevant regulations. The attendance of the students will be checked in the beginning, in the middle or at the end of the lessons. Throughout the semester the students who attend to all lectures will be given 15 activity-attendance points in addition to their exam grades.

**SOURCES****COMPULSORY LITERATURE**

No	Name of the book	Author's Name, Publishing House, Publication Year
1	Bilgi Aktarımı ve Kullanımı	Doran, B., Alacalı, S., Yapısal Analiz Programı SAP 2000, Bilgi Aktarımı ve Kullanımı, Birsen Yayınevi, İstanbul.
2	Computers and Structures	SAP2000 Graphic User Interface Manual, Computers and Structures, Inc.
3		

**ADDITIONAL LITERATURE**

No	Name of the book	Author's Name, Publishing House, Publication Year
1		
2		
3		

## EVALUATION SYSTEM

<b>Underlying the Assessment Studies</b>	<b>NUMBER</b>	<b>PERCENTAGE OF GRADE</b>
Attendance/Participation	15	%10
Project / Event	1	%20
Mid-Term Exam	1	%35
Final Exam	1	%35
<b>TOTAL</b>	<b>17</b>	<b>%100</b>

## ETHICAL CODE OF THE UNIVERSITY

In case of the students are cheating or attempt to cheat on exams, and in the case of not to reference the sources used in seminar studies, assignments, projects and presentations, in accordance to the legislations of the Ministry of Education and Science of Republic of Macedonia and International Vision University, will be applied the relevant disciplinary rules. International Vision University students are expected never to attempt to this kind of behavior.