

COURSE INFORMATION					
Course Title	Code	Semester	L+P+L Hour	Credits	ECTS
Arrangement of Structural Framing Systems	CE 532	-	3+0+0	3	10

Prerequisites	-
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Language of Instruction	English
Course Level	Master's Degree (Second Cycle Programs)
Course Type	Departmental Elective
Course Coordinator	Asst. Prof. Dr. Almıla Uzel
Instructors	Asst. Prof. Dr. Almıla Uzel
Assistants	-
Goals	This course is designed for students to advance in the design of structures.
Content	Introduction, criteria involved in choice of framing systems. Loads, design stages. Reinforced and prestressed concrete slabs. Columns. Lateral load resisting systems. Construction and movement joints. Tall buildings. Roofs. Effect of structural framing systems on sustainability and resilience of structures.

Course Learning Outcomes	Program Learning Outcomes	Teaching Methods	Assessment Methods
Ability to evaluate floor system options for a given layout.	2, 3, 4	1, 2	A, B
Ability to choose an appropriate lateral load resisting system.	2, 3, 4	1, 2	A, B
Ability to engineer a structure for best performance.	6, 9, 10	1, 2	B

Teaching Methods:	1: Lecture, 2: Project
Assessment Methods:	A: Written exam, B: Project Evaluation

COURSE CONTENT

Week	Topics	Study Materials
1	Introduction: Criteria involved in choice of framing systems	Lecture Notes
2	Loads: Gravity loads; lateral loads; loads resulting from other sources. Design Stages	Lecture Notes
3	Reinforced concrete slabs	Lecture Notes
4	Reinforced concrete slabs	Lecture Notes
5	Prestressed concrete slabs	Lecture Notes
6	Columns: Layout and transfer	Lecture Notes
7	Lateral load resisting systems, tall buildings	Lecture Notes
8	MIDTERM	Lecture Notes
9	Construction and movement joints	Lecture Notes
10	Prefabricated concrete systems	Lecture Notes
11	Roofs	Lecture Notes
12	Effect of structural framing systems on sustainability and resilience of structures	Lecture Notes
13	Term Project Works	Lecture Notes
14	Term Project Presentations	Lecture Notes

RECOMMENDED SOURCES	
Lecture Notes	These are the notes that the students wrote during the lectures.
Textbook	-
Additional Resources	<p>Aka, İ. Altan, M. Betonarme Taşıyıcı Sistemler, İ.T.Ü. İnşaat Fakültesi 1992</p> <p>Ambrose, J., "Simplified Design of Building Structures," Third Edition, John Wiley and Sons, ISBN 0-471-03744-3, 1995.</p> <p>Sarkisian, M., "Designing Tall Buildings- Structure as Architecture," Routledge, 2011.</p> <p>Allen, E. and Iano, J., "Fundamentals of Building Construction: Materials and Methods," Sixth Edition, John Wiley and Sons, ISBN 978-1-118-13891-5; ISBN 978-1-118-41919-9, 2011.</p>

MATERIAL SHARING	
Documents	Lecture notes, academical and technical papers
Exams	Exams questions are solved if demanded.

ASSESSMENT		
IN-TERM STUDIES	NUMBER	PERCENTAGE

Midterm	1	20
Term Project	1	80
Total		100
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		30
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE		70
Total		100

COURSE CATEGORY	Expertise Courses
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COURSE'S CONTRIBUTION TO PROGRAM						
No	Program Learning Outcomes	Contribution				
		1	2	3	4	5
1	Attains knowledge through wide and in-depth investigations his/her field and surveys, evaluates, interprets, and applies the knowledge thus acquired.					
2	Has a critical and comprehensive knowledge of contemporary engineering techniques and methods of application.				√	
3	By using unfamiliar, ambiguous, or incompletely defined data, completes and utilizes the required knowledge by scientific methods; is able to fuse and make use of knowledge from different disciplines.				√	
4	Has the awareness of new and emerging technologies in his/her branch of engineering profession, studies and learns these when needed.			√		
5	Defines and formulates problems in his/her branch of engineering, develops methods of solution, and applies innovative methods of solution.					
6	Devises new and/or original ideas and methods; designs complex systems and processes and proposes innovative/alternative solutions for their design.			√		
7	Has the ability to design and conduct theoretical, experimental, and model-based investigations; is able to use judgment to solve complex problems that may be faced in this process.					
8	Functions effectively as a member or as a leader in teams that may be interdisciplinary, devises approaches of solving complex situations, can work independently and can assume responsibility.					
9	Has the oral and written communication skills in one foreign language at the B2 general level of European Language Portfolio.			√		
10	Can present the progress and the results of his investigations clearly and systematically in national or international contexts both orally and in writing.			√		
11	Knows social, environmental, health, safety, and legal dimensions of engineering applications as well as project management and business practices; and is aware of the limitations and the responsibilities these impose on engineering practices.					
12	Commits to social, scientific, and professional ethics during data acquisition, interpretation, and publication as well as in all professional activities					

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION

Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Excluding the exam weeks: 14x Total course hours)	13	3	39
Hours for off-the-classroom study (Pre-study, practice)	14	-	-
Midterm	1	3	9
Project	1	180	180
Final	1	3	9
Total Work Load			237
Total Work Load / 25 (h)			10
ECTS Credit of the Course			10