

**Vocational School / Construction Technology**  
**2024 - 2025 Academic Year**  
**REPAIR and STRENGTHENING of CONSTRUCTION**  
**Syllabus**

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
REPAIR and STRENGTHENING of CONSTRUCTION	İNŞ2277080	Spring Semester	3+0	3	4
<b>Prerequisites Courses</b>					
<b>Recommended Elective Courses</b>					
<b>Language of Instruction</b>	Turkish				
<b>Course Level</b>	Short Cycle (Associate's Degree)				
<b>Course Type</b>	Elective				
<b>Course Coordinator</b>	Assist.Prof. Berk KESKİN				
<b>Name of Lecturer(s)</b>	Assist.Prof. Berk KESKİN				
<b>Assistant(s)</b>					
<b>Aim</b>	To give basic knowledge about the repair of damaged structures				
<b>Course Content</b>	This course contains; 1.h. Introduction, course aims, the importance of repairing the structure,2.h: Earthquakes,3.h: Earthquake centered design, classification of insulators,4.h: Basic principles of repair. Mechanical principles,5.h: Masonry and skeletal structure differences in general deterioration,6.h: Foundation and soil degradation in the repair and reinforcement work,7.h: Damage types on the walls,8.h: Vults, arches, types of damage seen in the dome and strengthening exercises,9.h: Uprights, located on the roofs of corruption and strengthening exercises,10.h: Damage of reinforced concrete structures and repair methods,11.h: Concrete reinforcement corrosion and deterioration types,12.h: Sulfate deterioration in concrete, shrinkage, blooming, cracks and repairs,13.h: Destructive analysis methods,14.h: Non-destructive analysis methods.				
<b>Course Learning Outcomes</b>			<b>Teaching Methods</b>	<b>Assessment Methods</b>	
1. Explain the type of damage and repair masonry structures.			10, 13, 16, 4, 9		
2. Explain the types of damage and repair of reinforced concrete structures.			10, 13, 16, 4, 9		
3. Explain and repair of concrete deterioration.			10, 13, 16, 4, 9		
4. Explain destructive and non-destructive methods for analysis.			10, 13, 16, 4, 9		
<b>Teaching Methods</b>	10: Discussion Method, 13: Case Study Method, 16: Question - Answer Technique, 4: Inquiry-Based Learning, 9: Lecture Method				
<b>Assessment Methods</b>					
<b>Lecture Schedule</b>					
<b>Sequence</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
1	1.h. Introduction, course aims, the importance of repairing the structure				
2	2.h: Earthquakes				
3	3.h: Earthquake centered design, classification of insulators				
4	4.h: Basic principles of repair. Mechanical principles				
5	5.h: Masonry and skeletal structure differences in general deterioration				
6	6.h: Foundation and soil degradation in the repair and reinforcement work				
7	7.h: Damage types on the walls				
8	8.h: Vults, arches, types of damage seen in the dome and strengthening exercises				
9	9.h: Uprights, located on the roofs of corruption and strengthening exercises				
10	10.h: Damage of reinforced concrete structures and repair methods				
11	11.h: Concrete reinforcement corrosion and deterioration types				
12	12.h: Sulfate deterioration in concrete, shrinkage, blooming, cracks and repairs				
13	13.h: Destructive analysis methods				
14	14.h: Non-destructive analysis methods				
<b>Evaluation Methods</b>		<b>Weight(%)</b>			
Midterm Exam		40			
General Exam		60			

Resources	
1) PROF. DR. MÜH. M. SÜHEYL AKMAN, Yapı Hasarları ve Onarım İlkeleri, Livane Matbaacılık, 2000.	
2) Kemal Kutgün Eyüpgiller, Lory Zakar, "Mimari Restorasyon Koruma Teknik ve Yöntemleri", Yapı Endüstri Merkezi Yayınları, 2015.	
3) İNŞ. YÜK. MÜH. NEJAT BAYÜLKE, Depremlerde Hasar Gören Yapıların Onarımı ve Güçlendirilmesi, TMMOB, 1984.	