

## COURSE SYLLABUS AND COURSE REQUIREMENTS

ACADEMIC YEAR 2024/25 SEMESTER 2.

<i>Course title</i>	<i>Structural Diagnostic Practice 2.</i>
<i>Course Code</i>	MSB396AN
<i>Hours/Week: le/pr/lab</i>	0/0/2
<i>Credits</i>	1
<i>Degree Programme</i>	Civil Engineering BSc
<i>Study Mode</i>	full time
<i>Requirements</i>	mid-term grade
<i>Teaching Period</i>	Spring semester (8.)
<i>Prerequisites</i>	Steel Structures 3., Reinforced Concrete Structures 3.
<i>Department(s)</i>	Department of Civil Engineering
<i>Course Director</i>	Dr. Zoltán Orbán
<i>Teaching Staff</i>	Dr. Zoltán Orbán, András Dormány, Dr. Attila Fülöp, Dr. Adél Len

## COURSE DESCRIPTION

The course provides students with a basic knowledge for the diagnostics, inspection and condition assessment of existing engineering structures. The semester will introduce basic and specific destructive, non-destructive and combined methods used for the geometric and structural performance and condition assessment of buildings and engineering structures. The tests will be complemented by geophysical and point cloud based measurement methods used in structural diagnostics. Chemical methods used to investigate structural deterioration processes are also presented.

## SYLLABUS

### 1. GOALS AND OBJECTIVES

The aim of the course is to provide students with the basic knowledge for the geometrical and structural health assessment of existing structures through theoretical presentations and laboratory exercises.

### 2. COURSE CONTENT

#### TOPICS

#### LABORATORY PRACTICE

1. Microscopic tests
2. Chemical tests
3. Geophysical investigations
4. Point cloud-based surveys

## DETAILED SYLLABUS AND COURSE SCHEDULE

### PRACTICE, LABORATORY PRACTICE

week	Topic	Compulsory reading; page number (from ... to ...)	Required tasks (assignments, tests, etc.)	Completion date, due date
6.	Microscopic tests	[2.]		
	Damage processes of structural materials	[1.] [2.]		
	Chemical tests	[1.] [2.]		
	Geophysical methods	[2.]		
10	3D laser scanning	[2.]		
	Drone photogrammetry	[2.]		

Exam		TEST 1 (practical) TEST 2 (theoretical)	
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### 3. ASSESSMENT AND EVALUATION

#### ATTENDANCE

Absence from practical sessions during the semester must not exceed 30%.

**Method for monitoring attendance** (e.g.: attendance sheet / online test/ register, etc.)

Attendance sheet

#### ASSESSMENT

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**Course resulting in mid-term grade (PTE TVSz 40§(3))**

**Mid-term assessments, performance evaluation and their ratio in the final grade** (The samples in the table to be deleted.)

Type	Assessment	Ratio in the final grade
Test 1	max 30 points	30 %
Test 2	max 50 points	50 %
Active participation in laboratory exercises	max 20 points	20 %

**Opportunity and procedure for re-takes** (PTE TVSz 47§(4))

During the first two weeks of the examination period, it is possible to make up and correct the exam grade once.

#### **Grade calculation as a percentage**

based on the aggregate performance according to the following table

Course grade	Performance in %
excellent (5)	85 % ...
good (4)	70 % ... 85 %
satisfactory (3)	55 % ... 70 %
pass (2)	40 % ... 55 %
fail (1)	below 40 %

The lower limit given at each grade belongs to that grade.

### 4. SPECIFIED LITERATURE

#### COMPULSORY READING AND AVAILABILITY

[1.] M Raupach, Till Büttler: Concrete Repair to EN 1504 - Diagnosis, Design principles and Practice, CRC Press, ISBN-13: 978-1-4665-5746-8

#### RECOMMENDED LITERATURE AND AVAILABILITY

[2.] Practical guides for all topics /download/