

COURSE SYLLABUS AND COURSE REQUIREMENTS**ACADEMIC YEAR 2025/2026 SEMESTER FALL**

<i>Course title</i>	CONSTRUCTION MATERIALS2
<i>Course Code</i>	MSM082AN-EA-00
<i>Hours/Week: le/pr/lab</i>	2 lectures per/week
<i>Credits</i>	2
<i>Degree Programme</i>	M.Sc in structural Engineering
<i>Study Mode (TVSZ-ben training schedule)</i>	
<i>Requirements</i>	Exam
<i>Teaching Period</i>	1st
<i>Prerequisites</i>	None
<i>Department(s)</i>	Civil Engineering
<i>Course Director</i>	
<i>Teaching Staff</i>	Ali Mohamed Mohamed Salem
<i>Hours/Week: le/pr/lab</i>	2 lectures /week

COURSE DESCRIPTION

Neptun: Instruction/Subjects/Subject Details/Basic data/Subject description

This course provides an introductory about material and product manufacturing techniques and how they relate to mechanical and non-mechanical properties of the various materials. Special emphasis is given in the course to concrete mix design and concrete technology.

Explaining and discussing High-Performance Concrete, Special concretes, Fibre reinforced plastics (FRP), Timber, Smart materials, and Recycling of construction materials.

SYLLABUS

Neptun: Instruction/Subjects/Subject Details/Syllabus

1. GOALS AND OBJECTIVES

Neptun: Instruction/Subjects/Subject Details/Syllabus/Goal of Instruction

Students will gain from this course:

- Comparative knowledge of material properties for most common and advanced building materials,
- Understanding of typical and advanced applications of construction materials,
- Ability to identify crucial problem areas in manufacture and applications of building materials,
- Understanding of importance of experimental verification of material properties..

2. COURSE CONTENT

Neptun: Instruction/Subjects/Subject Details/Syllabus/Subject content

TOPICS**LECTURE**

1. Introduction to construction materials.
2. Concrete technology I.
3. Concrete technology II.
4. Reliability assessment of existing concrete structures based on non-destructive test data
5. Structural application of HPFRC, Fibre reinforced plastics (FRP)
6. Self-cleaning concrete,
7. Glass fiber reinforced concrete,
8. Light transparent concrete
9. Recycling of construction materials
10. Materials with nano-technology
11. Rehabilitation and diagnostic
12. Timber Structures

DETAILED SYLLABUS AND COURSE SCHEDULE

ACADEMIC HOLIDAYS INCLUDED

LECTURE

week	Topic	Compulsory reading; page number (from ... to ...)	Required tasks (assignments, tests, etc.)	Completion date, due date
1.	Course description. Orientation. Introduction to construction materials.
2.	Concrete technology I.	Lecture notes and slides	Assignment _1	24-09-2025
3.	Concrete technology II.	Lecture notes and slides	Assignment _2	01-10-2025
4.	Reliability assessment of existing concrete structures based on non-destructive test data	Lecture notes and slides	Assignment _3	08-10-2025
5.	Structural application of HPFRC, Fibre reinforced plastics (FRP)	Lecture notes and slides	Assignment _4	15-10-2025
6.	Self-cleaning concrete, Glass fiber reinforced concrete,	Lecture notes and slides	Assignment _5	22-10-2025
7.	Midterm exam			
8.	Autumn break			
9.	Recycling of construction materials	Lecture notes and slides	Assignment _6	12-11-2025
10.	Light transparent concrete	Lecture notes and slides	Assignment _7	19-11-2025
11.	Materials with nano-technology	Lecture notes and slides	Assignment _8	26-11-2025
12.	Rehabilitation and diagnostic	Lecture notes and slides	Assignment _9	03-12-2025
13.	Sustainable materials	Lecture notes and slides		
14.	Student's presentations.			
15.	Final exam.			

3. ASSESSMENT AND EVALUATION

(Neptun: Instruction/Subjects/Subject Details/Syllabus/Examination and Evaluation System)

ATTENDANCE

In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description.

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

attendance sheet

ASSESSMENT

Cells of the appropriate type of requirement is to be filled out (course-units resulting in mid-term grade or examination). Cells of the other type can be deleted.

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

Mid-term assessments, performance evaluation and their ratio in the final grade

Type	Assessment	Ratio in the final grade
Attendance	10 points	10%
Assignments and presentation	15 points	15%
Midterm Exam	25 points	25%
Final Exam	50 points	50%

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

all tests and assessment tasks can be repeated/improved at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.

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.

Course-unit with final examination**Mid-term assessments, performance evaluation and their weighting as a pre-requisite for taking the final exam**

Type	Assessment	Weighting as a proportion of the pre-requisite for taking the exam
1. Attendance	10 points	10%
2. Assignments and presentation	15 points	15%
3. Midterm Exam	25 points	25%
4. Final Exam	50 points	50%

Requirements for the end-of-semester signature

The end-of-semester signature is successful if the result is minimum **40** %.

Re-takes for the end-of-semester signature (PTE TVSz 50§(2))

All tests and assessment tasks can be repeated/improved at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.

Type of examination (written, oral): written

The exam is successful if the result is minimum **40** %.

Calculation of the grade (TVSz 47§ (3))

The mid-term performance accounts for **25** %, the performance at the exam accounts for **50** % in the calculation of the final grade.

Calculation of the final grade based on aggregate performance in percentage.

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

In order of relevance. (In Neptun ES: Instruction/Subject/Subject details/Syllabus/Literature)

COMPULSORY READING AND AVAILABILITY

[1.] Primary compulsory reading and its availability

[2.] Compulsory literature and its availability

RECOMMENDED LITERATURE AND AVAILABILITY

[3.] Peter Domone, John Illston: "Construction Materials: Their Nature and Behaviour", Fourth Edition, 2010 by CRC Press, ISBN 9780415465151.

[4.] - Lecture notes and slides