

COURSE SYLLABUS AND COURSE REQUIREMENTS

ACADEMIC YEAR 2022/2023 SEMESTER SPRING

<i>Course title</i>	<i>Steel-Concrete Composite Structures</i>
<i>Course Code</i>	MSB391AN
<i>Hours/Week: le/pr/lab</i>	1/1/0
<i>Credits</i>	2
<i>Degree Programme</i>	Civil Engineering (BSc)
<i>Study Mode</i>	Course mark
<i>Requirements</i>	
<i>Teaching Period</i>	Full time
<i>Prerequisites</i>	Reinforced Concrete Structures 2, Steel Structures 2
<i>Department(s)</i>	Civil Engineering
<i>Course Director</i>	
<i>Teaching Staff</i>	Andras Dormany

COURSE DESCRIPTION

The aim of the course is to present the types of composite structures, working mechanism of them and the construction methods. The students have to learn the design methods according to Eurocode.

SYLLABUS

1. GOALS AND OBJECTIVES

Goals, student learning outcome.

The working mechanism of composite structures. Load bearing capacity of steel-composite structures in case of partial and full interaction. Longitudinal shear and shear connections. Effects of slip on stresses and deflection. Design of simply supported beam and slab. Design of multi-supported beams and slabs. Composite columns and frames. Serviceability Limit States.

2. COURSE CONTENT

TOPICS

LECTURE

1. *topic: Types of Steel-concrete composite structures, plastic analysis of simply supported composite structures*
2. *topic: Plastic analysis of multi-supported composite structures, interaction of bending and shear*
3. *topic: Plastic analysis of multi-supported beams and bridges*
4. *topic: Stability of composite structures, longitudinal shear, full and partial interaction*
5. *topic: Design of shear connection, serviceability Limit States*
6. *Composite columns*

PRACTICE

1. *topic: Effect of shrinkage and creep in Steel-concrete composite structures*
2. *topic: Calculation of simply supported beam*
3. *topic: Design of shear connection*
4. *topic: Full and partial interaction*
5. *topic: Serviceability Limit States*
6. *topic: Consultation*

DETAILED SYLLABUS AND COURSE SCHEDULE

ACADEMIC HOLIDAYS INCLUDED

LECTURE

week	Topic	Compulsory reading; page number (from ... to ...)	Required tasks	Completion date, due date
1.	Types of Steel-concrete composite structures, plastic analysis of simply supported composite structures	[1] 1-14 [2] 1-23		
2.				
3.	Plastic analysis of multi-supported composite structures, interaction of bending and shear	[2] 27-47		
4.				
5.	Plastic analysis of multi-supported beams and bridges	[1] 44-120		
6.				
7.	Stability of composite structures, longitudinal shear, full and partial interaction	[1] 122-169		
8.				
9.	Semester break			
10.				
11.	Design of shear connection, serviceability Limit States	[2] 63-71		
12.				
13.	1 st of May			
14.				
15.	Composite columns	[1] 170-213 [2] 81-85		

PRACTICE

week	Topic	Compulsory reading; page number (from ... to ...)	Required tasks	Completion date, due date
1.				
2.	Effect of shrinkage and creep in Steel-concrete composite structures			
3.				
4.	Calculation of simply supported beam	[1] 44-120		
5.				
6.	Design of shear connection	[1] 44-120	Publication of mid-term assignment	week 15
7.				
8.	Full and partial interaction	[1] 122-169		
9.	Semester break			
10.	Easter Monday			
11.				
12.	Serviceability Limit States	[2] 63-71	readiness check	
13.				
14.	Consultation			
15.				

3. ASSESSMENT AND EVALUATION**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

ASSESSMENT**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
Mid-term assignment	max 50 points	100%

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

During the semester the readiness of mid-term assignment will be checked. The mid-term assignment must be presented once during the semester. If the readiness is not acceptable it can be corrected within 1 week, after 1 week the mid-term assignment is not acceptable.

Late submission after week 15:

less than 1 week	-15%
more than 1 week but less than 2	-30%
more than 2 weeks	not acceptable

Grade calculation as a percentage

based on the aggregate performance according to the following table

Course grade	Performance in %
excellent (5)	above 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.] R.P. Johnson: Composite Structures of Steel and Concrete, third edition, 2004, ISBN 1-4051-0035-4
- [2.] W. I. Simms, A. F. Hughes: Composite design of steel frame buildings, 2011, ISBN 978-1-85942-202-1
- [3.] EuroCode 4: Design of composite steel and concrete structures

RECOMMENDED LITERATURE AND AVAILABILITY

- [4.]
- [5.]
- [6.]