

Title	Basics of Structural Design
Course code	MSB378ANEP
Weekly hours: lect/pract/lab	1 / 1 / 0
Credit points	2
Curriculum(s)/ type	Civil Engineering BSc./ obligatory
School	English
Requirement	midsemester grade
Registration semester	spring semester
Pre-requirement(s)	---
Gestor Department(s)	Department of Civil Engineering
Responsible and lecturers	Dr. Attila FÜLÖP

INTRODUCTION, LEARNING OUTCOMES

The goal of the semester is that the students should learn the theoretical background of the structural design, the basic knowledges of probability theories and the structure of the codified design through on the EuroCode Design Code system.

CONTENT

General Course Description and Main Content: Brief Syllabus: Structural design theory. Methodology of the engineering design. Structural, material and load modelling. Strength design, approximate and exact calculations. Summary of the structural mechanics. Statically determined and undetermined structures. EN 1990 (2002) (English): Eurocode - Basis of structural design. The Eurocode design code system. General assumptions, objectives, major concepts. Basic knowledges of the probabilistic design. Probability variables, main values, variance, quantile, etc. Limit state design concept, design situations, actions, combination of actions, verification of limit states. Actions on structures - General actions - Densities, self-weight, imposed loads for buildings. Actions on structures - General actions - Snow loads. Actions on structures - General actions - Wind actions. Actions on structures - Traffic loads on bridges. Actions on structures - Actions induced by cranes and machinery

Lecture and Practice:

1. Introduction
2. Structural design theory. Methodology of the engineering design.
3. Structural, material and load modelling. Strength design, approximate and exact calculations.
4. Summary of the structural mechanics. Statically determined and undetermined structures.
5. EN 1990 (2002) (English): Eurocode - Basis of structural design. The Eurocode design code system. General assumptions, objectives, major concepts.
6. Basic knowledges of the probabilistic design. Probability variables, main values, variance, quantile, etc.
7. Limit state design concept, design situations, actions, combination of actions, verification of limit states.
8. Actions on structures - General actions - Densities, self-weight, imposed loads for buildings
9. Actions on structures - General actions - Snow loads
10. Actions on structures - General actions - Wind actions
11. Actions on structures - Traffic loads on bridges
12. Actions on structures - Actions induced by cranes and machinery
13. Semester exam

EVALUATION AND GRADING

Attendance: Attending is required all classes. In case of unexcused absence from more than 30% of the total number of lessons will be grounds for failing the class. To be in class at the beginning time and stay until the scheduled end of the lesson is required, tardiness of more than 20 minutes will be counted as an absence. In the case of an illness or family emergency, the student must present a valid excuse, such as a doctor's note.

Signature / Grading: Semester grade is based on a semester test 95% and attendance 5%. Details are discussed on the practice.

Grading Scale:

85 – 100 %	A (5, jeles, excellent, sehr gut)
71 – 84 %	B (4, jó, good, gut)
60 – 70%	C (3, közepes, average, befriedigend)
50 – 59 %	D (2, elégséges, satisfactory, genügend)
0 – 49 %	F (1, elégtelen, fail, ungenügend)

MASKING REQUIRED INDOORS

The University of Pécs requires masking indoors for both vaccinated and unvaccinated individuals per the following:

- Masks should properly cover both the nose and mouth.
- More protective surgical, KN95 or N95 masks are highly recommended; bandanas and gators are not permitted.
- Faculty may unmask while teaching if 4 m of distance is maintained. All students must always wear masks.
- Individuals may only remove masks indoors when:
 - in an enclosed room alone.
 - actively eating or drinking.

RECOMMENDED READINGS

- [1st] Gulvanessian: Designers' Guide to EN 1990.
- [2nd] EN 1990 (2002) (English): Eurocode - Basis of structural design
- [3rd] EN 1991-1-1 (2002) (English): Eurocode 1: Actions on structures - Part 1-1: General actions - Densities, self-weight, imposed loads for buildings
- [4th] EN 1991-1-3 (2003) (English): Eurocode 1: Actions on structures - Part 1-3: General actions - Snow loads
- [5th] EN 1991-1-4 (2005) (English): Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions
- [6th] EN 1991-2 (2003) (English): Eurocode 1: Actions on structures - Part 2: Traffic loads on bridges
- [7th] EN 1991-3 (2006) (English): Eurocode 1: Actions on structures - Part 3: Actions induced by cranes and machinery
- [8th] B2: The role of EN 1990: the key head Eurocode, <http://eurocodes.jrc.ec.europa.eu>

SCHEDULE

	TEACHING PERIOD, TEACHING WEEKS															EXAM PERIOD				
2021/2022. II. SEMESTER	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	1.	2.	3.	4.	5.
Number of Lecture and Practice	1	2	3	4	5		6	7	8	9		10	11	12	13			Signature, midsemester grade can not be fulfil		
Exams															x					
Signature and midsemester grade															a /fj					
Planed exam time																				

8th February 2022.

Dr. Attila FÜLÖP

responsible lecturer