COURSE SYLLABUS AND COURSE REQUIREMENTS
ACADEMIC YEAR 25/26 SPRING

Course title	*Strength of Materials*
Course Code	*MSE001ANEM*
Hours/Week: le/pr/lab	0/2/0
ECTS	3
Degree Programs	Architecture Engineering BSc | Architecture OTM
Study Mode	*Full-time, in-person*
Requirements	Exam
Teaching Period	Spring
Prerequisites	MSE256ANEM Mechanics I (Statics)
Department(s)	Department of Civil Engineering
Course Director	*Dr Attila FULOP, associate professor*
Teaching Staff	*Dr. Tamás Juhász*
Schedule	*According to Neptun*

COURSE DESCRIPTION

In this course, students will delve into the fundamental principles of how materials behave under different loads. They will learn about the stresses and deformations in structures when subjected to various load systems. Additionally, the course will explore the stability of slender columns and introduce students to the intriguing concepts of elastic and plastic behavior exhibited by different materials.

SYLLABUS

1. GOALS AND OBJECTIVES

Specific, measurable student behavioral learning objectives.
Students must be able to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. Upon completion of the course, the student must be able to,

- Determine section properties of shapes.
- Calculate the elongation of centric loaded elastic bars.
- Design simple joints
- Determine stresses developing in beams
- Compute plastic resistances
- Analyze slender columns

2. COURSE CONTENT

	TOPICS
PRATICE	1. *Section Properties* 2. *Stresses, Strains, elongations* 3. *Elastic Hooke Models* 4. *Plastic Resistance* 5. *Combined loads* 6. *Special cases (buckling, anisotropy, plasticity)*

DETAILED SYLLABUS AND COURSE SCHEDULE, TENTATIVE

UNFORESEEABLE CIRCUMSTANCES MIGHT AFFECT THE SCHEDULE BELOW.
ACADEMIC HOLIDAYS INCLUDED

PRACTICE

week	**Topic**	**Compulsory reading**	**Required tasks (assignments, tests, etc.)**	**Completion date, due date**
1st	Introduction, properties of sections. Static moment of sections, centroid.	[1] Appendix, Geometric Properties of an Area		
2nd	Section properties. Second moment of inertia, principal axes	[1] Chapter 1, Stress		
3rd	Effects internal forces. Elastic Hooke models. Stresses from simple tension and compression. Elongations	[1] Chapter 1, Stress [1] Chapter 3, Strain [1] Chapter 4, Axial Load		
4th	Simple shear develops in dowels and rivets.	[1] Chapter 1, Stress		
5th	**1st Midterm Test**		Midterm test including the topics of weeks 1 to 4	5th academic week
6th	Elastic bending stresses. Additional bearing capacity due to plastic behavior.	[1] Chapter 6, Bending		
7th	Transverse shear of beams from pure bending.	[3] Chapter 7, Transverse Shear		
8th	Slender structures under centric compression, buckling	[1] Chapter 13, Buckling		
9th	Semester break			
10th	**2nd Midterm Test**		Midterm test including the topics of weeks 6 to 8	10th academic week
11th	Combined loads of bending and tension.	[1] Chapter 8, Combined Loadings		
12th	Uni and biaxial bending from eccentric compression	[1] Chapter 8, Combined Loadings		
13th	Uni and biaxial bending from eccentric compression applied on materials of low-tension strength	[1] Chapter 8, Combined Loadings		
14th	**3rd Midterm Test**		Midterm test including the topics of weeks 11 to 13	14th academic week

3. ASSESSMENT AND EVALUATION

ATTENDANCE

Under 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. Online attendance is not available.

Method for monitoring attendance

Attendance lists will monitor attendance. All relevant university regulations apply.

ASSESSMENT

There will be three 90-minute midterm tests. The preliminary dates are the 5th, 10th, and 14th week of the academic term. The exact dates will be announced no later than 14 days prior.
- Any test scoring below 40% will not be accepted and must be retaken.
- Midterm test results cannot be combined.
- Neatness is a part of the grading criteria for all student work.

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. *1st Midterm Test*	*max 100 points*	*1/3*
2. *2nd Midterm Test*	*max 100 points*	*1/3*
3. *3rd Midterm Test*	*max 100 points*	*1/3*

Requirements for the end-of-semester signature

- Each semester test must score 40 points or beyond.
- Regular attendance as per the Code of Studies.

Re-takes for the end-of-semester signature

- *A make-up test is available on the 1st week of the examination term.*

Type of final examination

written

The exam is successful if the result is a minimum of 40%

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

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

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

COMPULSORY READING AND AVAILABILITY

[1.] R.C. Hibbeler Mechanics of Materials, Eighth Edition ISBN 978-1-256-61400-5