COURSE SYLLABUS AND COURSE REQUIREMENTS
ACADEMIC YEAR 24/25 SEMESTER FALL

Course title	*STRUCTURAL ANALYSIS*
Course Code	*MSB112AN*
Hours/Week: le/pr/lab	2/1/0
ECTS	4
Degree Programme	Civil Engineer BSc
Study Mode	*Full-time, in-person*
Requirements	Exam
Teaching Period	24/25 Fall
Prerequisites	Mechanics II
Department(s)	Department of Civil Engineering
Course Director	
Teaching Staff	*Tamas Juhasz | juhasz.tamas@mik.pte.hu*
Schedule	

COURSE DESCRIPTION

This course presents and applies the principles of structural analysis to statically determinate and indeterminate structures.

SYLLABUS

1. GOALS AND OBJECTIVES

Specific (Measurable) Student Behavioral Learning Objectives:
Upon completion of this course, the student should be able to
1. Apply the principles of Mechanics of Materials to statically indeterminate elastic structural members to external loads, deformation, and internal forces.
2. Illustrate shear force and bending moment diagrams for beams and frames.
3. Analyze structures with moving loads.
4. Calculate structural member deflections under given loading.
5. Apply the stiffness method for truss, beam, and frame analysis.

2. COURSE CONTENT

	TOPICS
LECTURE, PRATICE, LAB	1. *DEFLECTIONS* 2. *DEFLECTIONS USING ENERGY METHODS* 3. *ANALYSIS OF STATICALLY INDETERMINATE STRUCTURES BY THE FORCE METHOD* 4. *DISPLACEMENT METHODS OF ANALYSIS, SLOPE-DEFLECTION EQUATIONS OF BEAMS* 5. *. DISPLACEMENT METHODS OF ANALYSIS, MOMENT DISTRIBUTION* 6. *TRUSS ANALYSIS USING THE STIFFNESS METHOD* 7. *BEAM ANALYSIS USING THE STIFFNESS METHOD*

DETAILED SYLLABUS AND COURSE SCHEDULE, TENTATIVE

UNFORESEEABLE CIRCUMSTANCES MIGHT AFFECT THE SCHEDULE BELOW.
ACADEMIC HOLIDAYS INCLUDED

LECTURE, PRATICE, LAB

week	**Topic**	**Compulsory reading**	**Required tasks (assignments, tests, etc.)**	**Completion date, due date**
1.	Registration, introduction in general	[1]	TBD	TBA
2.	Deflection Diagrams and the Elastic Curve Elastic-Beam Theory	[1]	TBD	TBA
3.	The Double Integration Method Moment-Area Theorems	[1]	TBD	TBA
4.	Conjugate-Beam Method	[1]	TBD	TBA
5.	External Work and Strain Energy	[1]	TBD	TBA
6.	Principle of Work and Energy Principle of Virtual Work Method of Virtual Work, Trusses	[1]	TBD	TBA
7.	Method of Virtual Work: Beams and Frames	[1]	TBD	TBA
8.	Statically Indeterminate Structures Force Method	[1]	TBD	TBA
9.	Displacement Method, Slope-Deflection Equations Analysis of Beams	[1]	TBD	TBA
10.	Displacement Method of Analysis: Moment Distribution	[1]	TBD	TBA
11.	Moment Distribution for Frames	[1]	TBD	TBA
12.	Truss Analysis Using the Stiffness Method	[1]	TBD	TBA
13.	Beam Analysis Using the Stiffness Method	[1]	TBD	TBA

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. Online attendance is not available.

Method for monitoring attendance

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

ASSESSMENT

There will be two 120-minute midterm tests. Preliminary dates 7th and 14th week. The exact dates are to be announced no later than 14 days prior.
No tests scored below 40% can be accepted and must be repeated.
Midterm test results cannot be combined.
A make-up test is available on the 15th week.
Neatness is part of the grade 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. *Test 1*	*max 100 points*	*40 %*
2. *Test 2*	*max 100 points*	*40 %*

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 15th week.*

Type of examination spoken

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 Structural Analysis 8th edition ISBN-13:978-0-13-257053-4