COURSE SYLLABUS AND COURSE REQUIREMENTS
ACADEMIC YEAR ... SEMESTER ...

Course title	*Structures I.*
Course Code	MSM405ANEP
Hours/Week: le/pr/lab	2/2/0
Credits	5
Degree Programme	Civil Engineering (Msc)
Study Mode (training schedule)	*Full-time training*
Requirements	*Examination (with grade)*
Teaching Period	1. semester
Prerequisites	Structural Analysis (Bsc), Mathematics (Bsc)
Department(s)	Civil Engineering Department
Course Director	*Attila FÜLÖP*
Teaching Staff	*Dávid Mansoor SADRINIA*

COURSE DESCRIPTION

A short description of the course (max. 10 sentences).
Neptun: Instruction/Subjects/Subject Details/Basic data/Subject description

The aim of the course is to provide the students with an advanced understanding of how FEM softwares work and how to use them in practise.

SYLLABUS

Neptun: Instruction/Subjects/Subject Details/Syllabus

1. GOALS AND OBJECTIVES

Goals, student learning outcome.
Neptun: Instruction/Subjects/Subject Details/Syllabus/Goal of Instruction

The subject of advanced structural analysis provides a way for structural engineers to extend and generalise their basic knowledge to a computer supported structural analysis. Matrix method is implemented so that complex structural problems may be done by computers. Different types of statically determinate and indeterminate trusses, beams, and skeletal structures are considered using the matrix stiffness method. This course will provide you with an introduction to several of those analytical and numerical methods based on matrix formulation which you may then find opportunity to practice later in the curriculum.

2. COURSE CONTENT

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

	TOPICS
LECTURE	*Theory of statically definite and indefinite trusses*
	Theory of beam and frame structures
PRACTICE	*Calculation of statically definite and indefinite trusses*
	Calculation of beam and frame structures
	Creating FEM models for truss and beam structures

DETAILED SYLLABUS AND COURSE SCHEDULE

ACADEMIC HOLIDAYS INCLUDED

LECTURE/PRACTISE

week	**Topic**	**Compulsory reading; page number (from … to …)**	**Required tasks (assignments, tests, etc.)**	**Completion date, due date**
1.	Calculate internal forces in statically determinate truss structures using the matrix stiffness method for 2D trusses			
2.	Calculate elongation in statically determinate truss structures using the matrix stiffness method for 2D trusses			
3.	Truss types, truss connections and their usage in practise			
4.	Calculate internal forces and elongations in statically indeterminate truss structures using the matrix stiffness method for 2D trusses			
5.	Write and use computer programs which the matrix stiffness method for 2D trusses			
6.	Use an interpretation of stiffness matrices to assemble stiffness matrices analytically for 3D trusses			
7.	-		First test	
8.	Integral curves, Integral equations and stiffness importance for connection design			
9.	AUTUMN BREAK			
10.	Use an interpretation of stiffness matrices to assemble stiffness matrices analytically for 2D beams			
11.	Write and use computer programs which implement the matrix stiffness method for 2D beams			
12.	Use an interpretation of stiffness matrices to assemble stiffness matrices analytically for frames			
13.	Write and use computer programs which implement the matrix stiffness method for frames			
14.	-		Second test	
15.	-		Test Retakes	

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 list

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-unit with final examination

Mid-term assessments, performance evaluation and their weighting as a pre-requisite for taking the final exam

(The samples in the table to be deleted.)

Type	Assessment	*Weighting as a proportion of the pre-requisite for taking the exam*
1. ***Test 1 (Written)***		*45%*
2. ***Test 2 (Written)***		*45 %*
3. ***Attendance***		*10%*

Requirements for the end-of-semester signature

(Eg.: mid-term assessment of 40%)

Passing both Test 1 and Test 2 with at least grade 2 for each exam.
Having an attendance with the minimum amount of appearance according to TVSZ

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

The specific regulations for grade betterment and re-take must be read and applied according to the general Code of Studies and Examinations. E.g.: all the tests and the records to be submitted can be repeated/improved each 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.

One out of the two tests can be retaken in the 15th week.

Type of examination *(written, oral):* *Oral*

The exam is successful if the result is minimum 40%. *(The minimum cannot exceed 40%.)*

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

The mid-term performance accounts for ***50*** %, 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

MATRIX ANALYSIS OF STRUCTURES (Author: Aslam Kassimali) Cengage Learning, Jan 1, 2011 - Technology & Engineering (https://books.google.hu/books?id=YeyWBwgl9REC&source=gbs_navlinks_s).
This book takes a fresh, student-oriented approach to teaching the material covered in the senior- and first-year graduate-level matrix structural analysis course. Unlike traditional texts for this course that are difficult to read, Kassimali takes special care to provide understandable and exceptionally clear explanations of concepts, step-by-step procedures for analysis, flowcharts, and interesting and modern examples, producing a technically and mathematically accurate presentation of the subject.

RECOMMENDED LITERATURE AND AVAILABILITY

[3.] ……
[4.] ……
[5.] ……