COURSE SYLLABUS AND COURSE REQUIREMENTS
ACADEMIC YEAR 2022/2023 SEMESTER 2

Course title	*Steel Structures 2*
Course Code	*MSB380ANEP*
Hours/Week: le/pr/lab	*1 / 2 / 0*
Credits	*4*
Degree Programme	*BSc Civil Engineering*
Study Mode	*full time*
Requirements	*exam grade*
Teaching Period	*spring semester*
Prerequisites	*MSB379ANEP Steel Structures 1.*
Department(s)	*Department of Civil Engineering*
Course Director	*Dr. Attila FÜLÖP associate professor*
Teaching Staff	*Dr. Attila FÜLÖP associate professor*

COURSE DESCRIPTION

The goal of the semester is that the students should learn the conventional steel structures, and should be able to solve the design of the execution drawings independently.

SYLLABUS

1. GOALS AND OBJECTIVES

Design of steel beams: classification, design of class 4 sections subjected to bending. Design of steel beams: stability design, lateral torsional buckling, shear buckling. Design of bar elements subjected to normal force and bending (N+M). Stability design of bar elements subjected to normal force and bending (N+M). Bolted and welded connections of steel bar elements subjected to normal force and bending. Application of component method at bolted connections. Global analysis of steel bar elements. Application of first and second order analysis. Imperfections. Coupled steel columns under compression.

2. COURSE CONTENT

	TOPICS
LECTURE AND PRACTICE	1. *Introduction.* 2. *Design of steel beams: classification, design of class 4 sections subjected to bending.* 3. *Design of steel beams: stability design, lateral torsional buckling, shear buckling.* 4. *Design of bar elements subjected to normal force and bending (N+M)* 5. *Stability design of bar elements subjected to normal force and bending (N+M)* 6. *Bolted and welded connections of steel bar elements subjected to normal force and bending.* 7. *Application of component method at bolted connections.* 8. *Global analysis of steel bar elements.* 9. *Application of first and second order analysis. Imperfections.* 10. *Coupled steel columns under compression.* 11. *Plastic analysis of steel elements* 12. *Exam*

DETAILED SYLLABUS AND COURSE SCHEDULE

LECTURE

week	**Topic**	**Compulsory reading; page number (from … to …)**	**Required tasks (assignments, tests, etc.)**	**Completion date, due date**
1.	1. Introduction.			
2.	Design of steel beams: classification, design of class 4 sections subjected to bending.	[1] [2]		
3.	Design of steel beams: stability design, lateral torsional buckling, shear buckling.	[1] [2]		
4.	Design of bar elements subjected to normal force and bending (N+M)	[1] [2]		
5.	Stability design of bar elements subjected to normal force and bending (N+M)	[1] [2]		
6.	Bolted and welded connections of steel bar elements subjected to normal force and bending.	[1] [2]		
7.	Application of component method at bolted connections.	[1] [2]		
8.	Global analysis of steel bar elements.	[1] [2]		
9.	Spring holiday			
10.	National holiday (Easter Monday)			
11.	Application of first and second order analysis. Imperfections.	[1] [2]		
12.	Coupled steel columns under compression.	[1] [2]		
13.	National holiday (1st of May)			
14.	Exam			
15.	Consultation, ReExam			

PRACTICE

week	**Topic**	**Compulsory reading; page number (from … to …)**	**Required tasks (assignments, tests, etc.)**	**Completion date, due date**
1.	1. Introduction.			
2.	Design of steel beams: classification, design of class 4 sections subjected to bending.	[1] [2]		
3.	Design of steel beams: stability design, lateral torsional buckling, shear buckling.	[1] [2]		
4.	Design of bar elements subjected to normal force and bending (N+M)	[1] [2]		
5.	Stability design of bar elements subjected to normal force and bending (N+M)	[1] [2]		
6.	Bolted and welded connections of steel bar elements subjected to normal force and bending.	[1] [2]		
7.	Application of component method at bolted connections.	[1] [2]		
8.	Global analysis of steel bar elements.	[1] [2]		
9.	Spring holiday			
10.	National holiday (Easter Monday)			
11.	Application of first and second order analysis. Imperfections.	[1] [2]		
12.	Coupled steel columns under compression.	[1] [2]		
13.	National holiday (1st of May)			
14.	Exam			
15.	Consultation, ReExam			

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

attendance sheet

ASSESSMENT

Course-unit with final examination

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. *Midsemester Test*	*max 50 points*	*50 %*
2. *home assignment (project documentation)*	*max 40 points*	*40 %*
3. *attendance*	*max 10 points*	*10 %*

Requirements for the end-of-semester signature

mid-term assessment of 40%

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.

The Midsemester Test can be retake once, if it fails. The home assignment can be resubmit within the given deadline, if it not reaches the min 40%.

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

The exam is successful if the result is minimum 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 % – 100%
good (4)	70 % – 84%
satisfactory (3)	55 % – 69%
pass (2)	40 % – 54%
fail (1)	0 % – 39%

4. SPECIFIED LITERATURE

COMPULSORY READING AND AVAILABILITY

[1.] Electric material in TEAMS

[2.] Iványi, Miklós - Iványi, Péter: EUROCODE Manual: Design of Multi-storey Steel Buildings (in English-Hungarian) POLLACK PRESS, Pécs, 2008, p. 380.

RECOMMENDED LITERATURE AND AVAILABILITY

[3.] Alexander Reichel, Peter Ackermann, Alexander Hentschel, Anette Hochberg, Building with Steel, 2007

[4.] Iványi, M. - Skaloud, M.: Stability Problems of Steel Structures (in English) CISM Courses and Lectures No 323, International Centre for Mechanical Sciences, SPRINGER - Verlag, Wien - New York, 1992, p. 415.

[5.] Iványi, M. Miklós - Iványi, Miklós - Iványi, Péter: Multi-Storey Steel Frames with Semi-Rigid Connections. Experimental Analysis (in English) POLLACK PRESS, Pécs, 2011, p. 175.