

Subject:	Steel and Composite Structures	Neptun code:	BMEEOHSAS41	KN	BV	
Lecturers:	Dr. Nauszika Kovács, Dr. Viktor Budaházy, Laczák Lili			Lecture room: Building EL Room 111		
Weekly program:				Lecture	Practice	Homework
Week	Lecture topics	TEST / HW	Date	Date	Topic of practice	Topic D: deadline EB: Early-bird deadline
1.	Introduction of topics, requirements. Local plate buckling. Shear buckling. Roles and configuration of stiffeners. (2x45 min)	Hand out 1st HW	2017.09.04	2017.09.04	Shear buckling+stiffener 1. (45 min.)	Hw1 1st problem: Welded plate girders, shear buckling D: 10.25. EB: 10.04.
2.	Design concept of Class 4 sections. Design for transverse loads. (2x45 min)		2017.09.11	2017.09.11	Shear buckling+stiffener 2. (45 min.)	
3.	Welded plate girders: configuration, design concepts. (45 min)		2017.09.18	2017.09.18	Class 4 sections, compression, bending. (2x45 min)	Hw 2nd problem: Class 4 cross-section D: 10.25. EB: 10.04.
4..	Beam-columns: configuration, hot-rolled and welded sections. Cross-section classification for N+M. Strength check. Stability phenomena and analysis, interaction of flexural buckling and lateral torsional buckling. (2x45 min)		2017.09.25	2017.09.25	Beam-column (45 min)	
5.	Behaviour and classification of connections according to EC3. (45 min)		2017.10.02	2017.10.02	Beam-coumuls, end-plate connections (2x45 min)	Hw1 3rd problem: Beam-columns strength check D: 10.25. EB: 10.18.
6.	Simple connections: configuration and design of continuous connections and column base. Simple connections: configuration and design of simple (pinned) column-to-beam and beam-to-beam connections. (2x45 min)		2017.10.09	2017.10.09	Continuous connection subjected to combined shear and bending. (45 min)	
7.	Preparation for the midterm exam (3x45 min)	Deadline of 1st HW	2017.10.16	2017.10.16	lecture	Hw1 4th problem: Web design under composed bending and shear Hw1 5th problem: Simple end-plate connection
8.	Day off	1st mid-term: 10.25. 18-20 KmF26	2017.10.23	2017.10.23	Day off	D: 10.25.
9.	Ideal cross-section, calculation of normal stresses short term loads. (45 min)	Repetition of 1st mid-term: 11.02. 18-20 K.f88. Hand out 2nd HW	2017.10.30	2017.10.30	Elastic stress analysis of composite beams (2x45 min)	Hw2 1st problem: Ideal cross-section, elastic design D: 11.29. EB: 11.15.
10.	Introduction to composite structures. Concepts, behaviour. Configuration of composite beam, construction. Basis of elastic analysis. Elastic design of composite beams- ideal cross-section, calculation of stresses short and long term loads. (3x45 min)		2017.11.06	2017.11.06	lecture	
11	Design of composite structures according to EC4: basic concept, safety factors, material properties. Effective width. Classification of beam sections. (2x 45 min)		2017.11.13	2017.11.13	Classification of composite beams. (45 min)	Hw2 2nd problem: Cross-section classification, plastic design of beams D: 11.29.
12	Plastic resistance of beam cross-sections. Configuration and design of shear connections plastic analysis. Example. (2x45 min)		2017.11.20	2017.11.20	Plastic analysis of composite beams. (45 min)	
13	Lateral torsional buckling (45 min)	2nd mid-term: 11.30. 18-20 KmF26	2017.11.27	2017.11.27	Preparation for the midterm exam (2x45 min)	Hw2 3rd problem: Shear connections D:11.29.
14	Design of shear connections (elastic). (2x45 min)	Repetition of 2nd mid-term: 12.06. 18-20 K.f88. Deadline of 2nd HW	2017.12.04	2017.12.04	lecture	
		Extra repetition test: 12.12. 12-14 KmF79				