Course title: **Integrity of Welded Structures**	**Neptun code:** **GEMTT515-a**
Course coordinator: **Dr. János Lukács, Full Professor, CSc (PhD)**	
type and number of lesson: **lectures, 28 hours/ semester**	
method of accountability: **colloquium**	
curriculum location of the subject: **autumn** / spring	
pre-study conditions: **N/A**	
The task and purpose of the subject:	
systematic presentation of the elements of structural integrity; characterising of the welded structures and the discontinuities in welded joints; overview of different life-time estimation and management methods, and their applicability based on case studies	
Course description:	
Conceptual model of structural integrity: global, experimental and information-technical aspects. Characteristics of welded structures and structural elements, types of structures, typical structures. Design of welded structures, materials characteristics. Investigations of welded structures and welded joints. Discontinuities in welded joints and their evaluation methods: workmanship criteria and engineering critical assessment methods. Life-time concepts: life-time, remaining life-time, remaining life-time functions, life-time management. Engineering and fracture mechanical approaches of life-time management. Case studies: bridges, pressure vessels, transporting pipelines.	
Required literature:	
1. K. A. Macdonald (ed.): Fracture and fatigue of welded joints and structures. Woodhead Publishing Limited, 2011. ISBN: 978-1-84569-513-2. 2. T. Gurney: Cumulative damage of welded joints. Woodhead Publishing Limited, 2006. ISBN: 978-1-85573-938-3. 3. S. Lampman (ed.): Weld Integrity and Performance. ASM International, Materials Park, OH, 1997. ISBN: 0-87170-600.	
Recommended literature:	
1. H. Naubereit, J. Weihert: Einführung in die Ermüdungsfestigkeit. Carl Hanser Verlag, München-Wien, 1999. ISBN: 978-3-446-21028-8. 2. A. P. Keller (ed.): Bruchmechanik druckbeanspruchter Bauteile. Verlag TÜV Rheinland, München-WIEN-Köln, 1990. ISBN: 3-446-15617-8. 3. K. W. Muhlbauer: Pipeline risk management manual. Ideas, techniques, and resources. Elsevier – Gulf Professional Publishing, 2004. ISBN: 9780080497709.	