

Course title: Assembly processes and systems	Neptun code: GEGTT414-a
Course coordinator: Dr. György Kovács, full professor, Ph.D.	
type and number of lesson: 2 lecture/week	
method of accountability: colloquium	
curriculum location of the subject: autumn and spring	
pre-study conditions: -	
The task and purpose of the subject:	
Introduction of advanced assembly processes and assembly systems. Discussion of the main aims and strategies of the assembly; furthermore, design methods for assembly processes and systems.	
Course description:	
General dimensional chain theory. Exchangeability theory. Accuracy of the assembly. Correctness of different constructions from the perspective of assembling technology. Theoretical basis of the assembly automation. Ordering theory; degrees of freedom. Component supply of assembly systems. Optimization of assembly processes. Motion analysis. General assembly methods. Assembly tools and devices. Assembly machines. Auxiliary equipment for assembling. Assembly processes and systems. Planning of the assembly process. Improvement of the assembly: lead time minimization, mechanization, automation, robotization. Maintenance of assembly systems. Quality assurance in the assembly. Layout designing of assembly systems. Flexible assembly systems. Case studies.	
Required literature:	
<ol style="list-style-type: none"> 1. Butala P., Mpofu K.: Assembly Systems. CIRP Encyclopedia of Production Engineering, Springer, Berlin, ISBN: 978-3-642-35950-7, 2019. 2. Kumar, K., Zindani, D., Davim, J. P. (eds.): Digital Manufacturing and Assembly Systems in Industry 4.0, CRC Press, Boca Raton, ISBN: 978-0-429-46476-8, 2019. 3. Li, Jingshan; Meerkov, S. M.: Production Systems Engineering, Springer, New York, ISBN: 978-0-387-75578-6, 2009. 	
Recommended literature:	
<ol style="list-style-type: none"> 1. Tang, H.: Automotive Vehicle Assembly Processes and Operations Management, SAE International, ISBN: 978-0-768-08338-5, 2017. 2. Andreasen, M. M., Kahler, S., Lund, T.: Design for Assembly, Springer Verlag, Berlin, ISBN: 0387125442, 1983. 3. Chryssolouris, G.: Manufacturing Systems - Theory and Practice, ISBN: 978-0387-25683-2, Springer, 2006. 	