

Course title: Methodical design of Machine Tools	Neptun code: GESGT412
Course coordinator: Dr. György Hegedűs, associate professor, PhD	
type and number of lesson: lecture /seminar/practical lesson/consultation, 2 / week or semester	
method of accountability: colloquium	
curriculum location of the subject: autumn	
pre-study conditions:	
The task and purpose of the subject:	
The aim of the course is for PhD students to learn about the description method of machine tool structures and the methodical design options that can be used to explore machine tool structures.	
Course description:	
The relationship between planning and economics. Design approaches. Major design schools and their characteristics. The essence of intuitive design, an outline of the intuitive design process. The basic idea of methodical planning. Typical techniques of methodical design, knowledge tree and knowledge matrix, etc. Selection of solutions, error criticism, value tests. Principles of streamlining and speeding up planning. Principles of combining and separating functions. Machine tools with serial and parallel kinematics. Coding of machine tool components. Description of machine tools with morphological equations. Methods of computer generation of machine tool structures. Examples and case studies from the design of cutting machine tools.	
Required literature:	
<ol style="list-style-type: none"> 1. Takács, Gy., Zsiga, Z., Makó, I., Hegedűs, Gy.: <i>Gyártóeszközök módszeres tervezése</i> (electronic format) 2. M. Hzirz, W. Dietrich, A. Gfrerrer and J. Lang: <i>Integrated Computer-Aided Design in Automotive Development</i>, Berlin: Springer-Verlag, 2013, ISBN 978-3-642-11939-2 3. K. Roth: <i>Konstruieren mit Konstruktionskatalogen</i>, Springer Berlin, Heidelberg, 2000. doi: https://doi.org/10.1007/978-3-642-17466-7. 	
Recommended literature:	
<ol style="list-style-type: none"> 1. N. Cross: <i>Engineering Design Methods - Strategies for Product Design (Third Edition)</i>, London: John Wiley 2005, ISB 978-0-47187-250-4. 2. G. Pahl, W. Beitz, J. Feldhusen and Karl-Heinrich Grote: <i>Engineering Design - A Systematic Approach</i>, London: Springer-Verlag 2007, ISBN 978-1-84628-318 	