

Course title: Multidisciplinary Optimization of Machine Elements	Neptun code: GEGET416-a
Course coordinator: Ferenc János Szabó, associate professor, PhD	
type and number of lesson: <u>28 (14 x 2 lectures/week)</u>	
method of accountability: <u>colloquium/practical mark/other</u>	
curriculum location of the subject: <u>autumn</u>	
pre-study conditions: No	
The task and purpose of the subject:	
Study of history, thinking, working and programming of multidisciplinary optimization programs.	
Course description:	
Overview of the state of the art of optimization science, algorithms, programming. Benchmark problems. Genetic algorithm (working, programming, improving). Multidisciplinary or multiphysics possibilities of some finite elements program systems available in the market. Multidisciplinary optimization, connecting finite elements and optimization. Demonstration and solution of this kind of problems and results.	
Required literature:	
<ol style="list-style-type: none"> 1. Kirsch, U.: Optimum Structural Design. McGraw- Hill, New York, 1981. 2. Wilde, D.J. - Beightler, C.S.: Foundations of Optimization. Prentice- Hall inc., Englewood Cliffs, 1967. 3. Goldberg, D.E.: Genetic Algorithms in Search, Optimization and Machine Learning. Addison- Wesley, Massachusetts, 1989. 	
Recommended literature:	
<ol style="list-style-type: none"> 1. SRAC: OSMOS/M User's Guide, Santa Monica, CA, USA, 1995. 2. SDRC: I-DEAS User's Guide, Milford, OH, USA, 1993. 3. Singeresu S Rao: Engineering Optimization. Theory and Practice. John Wiley and Sons, USA, 2009. 	