Course title: Design informatics	**Neptun code: GESGT413a**

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 new perspectives that state-of-the-art engineering tool systems open up when performing high-level engineering and research tasks.

Course description:

Basic concepts of technical design. History and basics of CAD. Possibilities of computer-aided design in various phases of technical design. Integrated engineering design systems. Synthesis of leading CAD systems. Engineering design system and task balance. Development of CAD systems, creation of special professional environments. Application of expert systems in planning. Application of design informatics methods during conceptual design, computer generation of solutions. Application of design informatics methods during dimensional planning, computer optimization of solutions. Design informatics during production, computer generation of toolpaths. Rapid-prototyping technologies. Globalization of technical design. Virtual design and manufacturing.

Required literature:

1. D. Un, Solid Modeling and Applications - Rapid Prototyping, CAD and CAE Theory, Switzerland: Springer International Publishing , 2016.
2. M. Hzirz, W. Dietrich, A. Gfrerrer and J. Lang: Integrated Computer-Aided Design in Automotive Development, Berlin: Springer-Verlag, 2013, ISBN 978-3-642-11939-2
3. I. Storud, H. Nagy, Solid Modelling and CAD systems – How to Survive a CAD System, London: Springer-Verlag, 2011.

Recommended literature:

1. N. Cross, Engineering Design Methods - Strategies for Product Design (Third Edition), London: John Wiley 2005, ISB 978-0-47187-250-4.
2. G. Pahl, W. Beitz, J. Feldhusen and Karl-Heinrich Grote, Engineering Design - A Systematic Approach, London: Springer-Verlag 2007, ISBN 978-1-84628-318