

<b>Course title: Computer Aided Design of Machine Elements</b>	<b>Neptun code: GEGET404-a</b>
<b>Course coordinator:</b> Szabolcs Szávai, associate professor, PhD.	
type and number of lesson: Weekly lecture + seminar hours: 28 (14 x 2/week)	
method of accountability: colloquium	
curriculum location of the subject: autumn/spring	
pre-study conditions:	
<b>The task and purpose of the subject:</b>	
To know the background of the operation of the CAD software, the modelling techniques, the mathematical background of some important operations, and the relationship between the CAD and other areas e. g. CAM, FEA, RP.	
<b>Course description:</b>	
The design process. The role of CAD in design. Creating the model. Spatial modelling options. The wire-frame model. Surface models. Solid models. Fundamentals of geometric modelling. Parametric definition of curves and surfaces. Elements of interactive computer graphics. Manipulation of drawing elements. Transformations. Mirroring. Trimming, extension. Storing data. Data structures of interactive modelling. Integrated databases. Engineering data management systems. Object oriented databases. Using the CAD model in design. 3D modelling and 2D visualization. Finite element analysis. CAD standards. Standards for data transfer: DXF, IGES, STEP. Feature based modelling. Relationship between design and manufacturing: CAD/CAM. Rapid prototyping. Mathematical software in machine design.	
<b>Required literature:</b>	
1. McMahon, C.; Browne, J.: CAD/CAM: Principles, Practice, and Manufacturing Management. Prentice Hall, New Jersey, 1998.	
<b>Recommended literature:</b>	
<ol style="list-style-type: none"> <li>1. Amirouche, F. M. L.: Computer-Aided Design and Manufacturing. Prentice Hall, New Jersey, 1993.</li> <li>2. Lee, K.: Principles of CAD/CAM/CAE. Prentice Hall, New Jersey, 1999.</li> <li>3. Shah, J. J.; Mantyla, M.: Parametric and Feature-Based CAD/CAM: Concepts, Techniques, and Applications. John Wiley &amp; Sons, New York, 1995.</li> <li>4. Zeid, I.: CAD/CAM Theory and Practice. McGraw-Hill, New York, 1991.</li> </ol>	