

<b>Course title: Descriptive Geometry in Engineering</b>	<b>Neptun code: GEAGT403-a</b> <b>Number of credits: 5</b>
<b>Course coordinator: Zsuzsanna Óváriné Dr. Balajti, Associate Professor, habilitated PhD</b>	
type and number of lesson: lecture/seminar/practical lesson/consultation ... / week or semester	
method of accountability: Colloquium task to be submitted supporting the PhD doctoral theme	
Curriculum location of the subject: autumn and spring	
There are no pre-study conditions:	
<b>The task and purpose of the subject:</b>	
The main goal of the subject is to increase the awareness of mathematical geometric spatial perception, furthermore to develop an awareness of spatial geometric relationships and the avoidance of anomalies arising during their communication on the plane. The content of the subject was compiled in accordance with the geometrical knowledge required in the fields of mechanical engineering sciences, with particular regard to the possibilities of independent further development.	
<b>Course description:</b>	
Mathematical geometric visualization based on engineering representation. Mathematical geometric representation without loss of information, bijective relationship between 3D and 2D, creation of spatial constructions on the plane. Constructive geometric treatment of polyhedron, sphere, cone, cylinder, helicoid surfaces. Interpolation and approximation curves and surfaces and splines. Motion geometry and manufacturing geometry approach to creating complicate surfaces. Linear algebraic aspects of constructive geometric solutions. Correlations of perpendicular projections and computer-aided engineering design.	
<b>Required literature:</b>	
<ol style="list-style-type: none"> <li>1. Óváriné Dr. Balajti, Zsuzsanna: Theoretical analysis and application of the Monge representation in engineering practice, Midkolc, Gazdász Elasztik Kft., 2015.</li> <li>2. DUDÁS, I.: The Theory and Practice of Worm Gear Drives Penton Press, London, 2000. (ISBN 1877180295)</li> </ol>	
<b>Recommended literature:</b>	
<ol style="list-style-type: none"> <li>1. Kathryn Holliday-Darr: Applied Descriptive geometry, Delmar, Cengage Learning, 1998.</li> <li>2. I. D. Faux, m. J. Pratt: Computational Geometry for design and Manufacture, West Sussex, PO19 1EB, England, 1987.</li> </ol>	