

Title of the course: Machine elements	NEPTUN-code: RKEGZ1ABNE	Weekly teaching hours: lecture+practical work+lab work 1+2+0	Credit: 3 Exam type: e
Course leader: Andrea Paukó, Dr.	Position: associate professor	Required preliminary knowledge (with code too): RKXMR1EBNE	
Curriculum:			
<p>The course aims to introduce the most basic machine parts, giving insight to the engineering speciality. The subject deals with machine parts and machine structures used in up-to-date machines, their types, properties and design principles. Main topics:</p> <p>The concept of machine elements, groups and design principles</p> <ul style="list-style-type: none"> – rotating machine parts, shaft joints, – mechanical drives: gear drives, worm gearing, chain drive, belt drive. Principle of friction transmission, – brakes: structure, function and design basics, – supporting shafts, bearings, basic concepts of tribology – storage elements: pipe lines and fittings, pipe joints, valve, gate valve, check valve. Flow losses of pipe networks, characteristic curves, reservoirs and seals, – grouping of fluid machinery, characteristic parameters. Essential features of pumps, pump head, efficiency, and useful power. – structure of ventilation equipment and operation (fans, blowers, compressors, vacuum pumps). 			
Professional competencies:			
<p>Knowledge of major environmental technologies, equipment and structures associated with each technology, including the functioning and operation thereof.</p> <p>Adequate perseverance and endurance of monotony to perform practical operations.</p> <p>Able to cooperate with engineers involved in the development and application of production and other technologies to develop the given technology in terms of environment protection.</p> <p>Able to reveal deficiencies in the technologies applied and process risks and to initiate mitigation measures after getting familiarized with the technology concerned.</p>			
Literature:			
Steven R. Schmid, Bernard J. Hamrock, Bo. O. Jacobson: Fundamentals of Machine Elements, ISBN 9781439891322			
Machine elements, handbook, http://www.gbi.bgk.uni-obuda.hu/oktatas/segedanyagok/gepelemek/Machine_Design_2/Machine%20Element.pdf			