

Title of the course: Environmental hazards I. - Noise and Vibration Protection	NEPTUN-code: RKXKA1ABNE	Weekly teaching hours: <i>l+cw+lb</i> 2+1+0	Credit: 3 Exam type: tm
Course leader: Konrád Lájér, Dr.	Position: associate professor	Required preliminary knowledge: There is no requirement	
Curriculum:			
<p>The study of this subject can be divided into two main parts:</p> <ol style="list-style-type: none"> noise, noise pollution and effect on human, physical describing of sound waves, sound levels (SWL, SPL, SIL) loudness and frequency (Fletcher-Munson curves), noise reduction methods, noise filters, noise measurement and calculation, noise map. Noise protection at the source, transmission path and receiver. vibration, vibration pollution, modelling of vibration (free and damped), levels in decibels (acceleration, velocity, displacement), forced oscillations, resonance frequency (Tacoma Narrows Bridge), effects of vibration on human depend on many factors, whole body and hand-arm vibrations, vibration absorption, vibration measurement. Vibration insulation and damping. 			
Professional competencies:			
<p>Knowledge of general and specific mathematical, natural and social scientific principles, rules, relations, and procedures as required to pursue activities in the special field of environment protection.</p> <p>Able to solve tasks of water, soil, air, radiation, and noise protection, as well as of waste treatment and processing at proposal level; to participate in preparing decisions; to perform authority audits; and to take part in the operation of these technologies.</p> <p>Able to communicate both verbally and in writing in their mother tongue and in at least one foreign language, in respect of professional issues, and to continuously develop their professional skills as required.</p> <p>Able to carry out assignments as environmental officer.</p> <p>Open to professional cooperation with specialists related to their profession but involved in other areas.</p> <p>Efforts to improve knowledge by on-going self-education and continuously update their knowledge of the world.</p> <p>Constantly upgrading their knowledge of environment protection by attending organized professional development training courses.</p> <p>Responsible proclamation and representation of the value system of the engineering profession; openness to professionally well-founded critical remarks.</p>			
Literature:			
1. Serway Jewett: Physics for Scientist and Engineers			
2. http://www.bvsde.paho.org/bvsacd/cd53/noise/cap3.pdf			
3. http://pcfarina.eng.unipr.it/Public/Acoustics-Course/Penn-State-Course/10_osp.pdf			
Comment:			