



Course: Environmental Physics	Course type: Seminar	Credits: 4	Course ID: KTAK113
Course responsible: Zsuzsanna Plank	Programme type: correspondence	Hours/Semester 18	Assessment: exam
Course objectives: Study the physical background the phenomena and processes of the environment.			
Competencies to be improved: Knowledge: T1, T2, T7 Ability: K2, K3 Attitude: A2 Autonomy and responsibility: F2			
Compulsory literature: Downloadable course material provided by the lecturer.			
Recommended literature: M.H. Unsworth: Environmental Physics: https://www.oxfordbibliographies.com/view/document/obo-9780199363445/obo-9780199363445-0075.xml			
Course content: <ol style="list-style-type: none">Radioactivity. Nuclear reactions: α, β, γ radiation, nuclear fusion, nuclear fission. Phenomenon and sources of natural radioactivity. Sources of artificial radioactivity. Nuclear reactions in the Sun. Radioactivity of environmental systems.Gravity and the physics of the universe. Laws of planetary motion, cosmic velocities. Basic astronomical concepts and phenomena. General characterization of the Solar System and the Milky Way. Cosmic radiation, redshift, Hubble's law. The big bang theory. Gravitational waves.Magnetism. Basic concepts: magnetic dipole moment, magnetization, magnetic induction. Magnetic properties of materials: remanent and induced magnetization, diaphragm and ferromagnetic materials. The Earth's magnetic field: geodynamic principle, inclination, declination, changes over time. Magnetic phenomena of the Earth's atmosphere.Physical states and physics of fluids. Physical states and their transitions. Evaporation, precipitation. Phase diagram of water. Physics of fluid flow. Continuity equation, Bernoulli's law.Electricity. Electric conduction in nature. Electrical properties of natural elements. Electrical polarization. Natural potential and induced potential. Primary and secondary electromagnetic fields.Wave propagation principles. Wave phenomena: interference, deflection, dispersion, standing wave. Wave laws at the boundary of two media: reflection, refraction, refraction. Propagation of elastic waves. Flexibility of bodies, Hooke's law. Voice, noise, acoustic waves.Electromagnetic wave propagation. Light as an electromagnetic wave. The spectrum of the electromagnetic wave. The wave phenomenon of light. Laws of imaging, geometric optics.			
Course requirements: Attendance at classes. Completing 2 tests on the materials of the previous two classes, each with <i>pass</i> grade. Exam grade can be offered based on the average grade of midterm tests.			
Grading scale: <u>Midterm grades:</u> >90 %: excellent, 75-89.9 %: good, 60-74.9 %: satisfactory, 45-59.9 %: pass <u>Exam grades:</u> >90 %: excellent, 80-89.9 %: good, 65-79.9 %: satisfactory, 50-64.9 %: pass			
Course Programme: WJLF ENVIRONMENTAL SCIENCE	Semester: 2022_2023_1	Lecturer: Zsuzsanna Plank	



WESLEY JÁNOS LELKÉSZKÉPZŐ FŐISKOLA
TANTÁRGYTEMATIKA

