

Level: bachelor			
Course title: Oscillations and Waves			
Status: obligatory			
ECTS: 6			
Requirements: none			
Learning objectives Study of oscillation phenomena and their propagation in the material environment in the form of mechanical waves.			
Learning outcomes After completion of the course student should have developed: - General skills: reading professional literature, monitoring the technical literature; use of the Internet, writing and presentation of seminars - Subject-specific skills: Learning about the various types of oscillatory movements and their mathematical formulation. Understanding the concept of wave motion and phenomena related to wave propagation.			
Syllabus <i>Theoretical instruction</i> Simple harmonic motion (The simple spring, Hooke's law and small oscillations, Phase relations and phasor diagrams, Simple pendulum, Physical pendulum, LC circuit), Damped oscillations, Driven and damped oscillations, "Mechanical Waves": Waves in a Medium, Traveling Waves, Periodic Traveling Waves, Longitudinal Waves, Transverse Waves, Developing a Wave Equation, Sinusoidal Traveling Waves, Sound Waves, The Doppler Effect for Sound Waves, Sound Intensity, Inverse Square Law, Superposition Principle, Standing Waves. <i>Practical instruction</i> Selected experimental exercises and seminars.			
Weekly teaching load			Other:
Lectures: 45	Exercises: 15	Other forms of teaching:	