Course Unit Descriptor

Study Programme: Physics
Course Unit Title: Oscillations and Waves
Course Unit Code: F18OT
Name of Lecturer(s): Full Professor Maja Stojanović
Type and Level of Studies: Bachelor of Science in Physics
Course Status (compulsory/elective): Compulsory
Semester (winter/summer): Summer
Language of instruction: English
Mode of course unit delivery (face-to-face/distance learning): Face-to-face
Number of ECTS Allocated: 6
Prerequisites: None
Course Aims: 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: *Theory* 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. *Practice* Selected experimental exercises and seminars.

Required Reading: Thomas Kurz, Ulrich Parlitz, and Udo Kaatze (Eds.) ,Oscillations Waves and Interactions		
Weekly Contact Hours:	**Lectures:** 2	**Practical work:** 3
Teaching Methods: Theoretical classes are performed using modern methods of presentation, with the active participation of students, a practical training includes laboratory exercises and preparation and presentation of a seminar work		
Knowledge Assessment (maximum of 100 points): 100		

Pre-exam	points	**Final exam**	points

obligations			
Active class participation		written exam	30
Practical work	10	oral exam	40
Preliminary exam(s)		…….	
Seminar(s)	20		