

## Theory of Wave Processes

<b>Unit Title</b>	Theory of Wave Processes.		
<b>Level of Study</b>			
<b>Credit Value</b>		<b>ECTS Value</b>	
<b>Home Department</b>	Department of Theoretical Physics.		
<b>Home Faculty</b>	Physics Faculty.		
<b>Unit Co-ordinator</b>	Alexey A. Alabuzhev.		
<b>Key Words</b>	Theory of wave processes, electrodynamics, acoustics, solid state theory, hydrodynamics and plasma theory, theory of nonlinear waves, Kolmogorov–Petrovsky–Piskunov equation, Allen–Cahn equation, Schrödinger equation, conservation laws.		
<b>Brief Summary</b>	This course is devoted to basic terms, concepts and laws of the theory of waves. Students will study classical problems of the wave theory and its application to electrodynamics, acoustics, solid state theory, hydrodynamics and plasma theory, main equations.		
<b>Indicative Content</b>	<p>This course implies:</p> <ul style="list-style-type: none"> <li>- Learning of the basic terms, concepts and laws of the theory of waves.</li> <li>- Studying of classical problems of the wave theory and its application to electrodynamics, acoustics, solid state theory, hydrodynamics and plasma theory.</li> <li>- Owning the theory of nonlinear waves, using the basic concepts of the theory of stability of distributed systems.</li> <li>- Studying of main equations: Kolmogorov–Petrovsky–Piskunov equation, Allen–Cahn equation, Schrödinger equation etc.</li> <li>- Understanding the importance of conservation laws and their fundamental role in the wave theory.</li> </ul>		