

Course title	Environmental physics						
Code	ZDOB03						
Study	Ph.D. study of Nature and Environmental Protection						
Semester	I.						
ECTS	6						
Course state	Compulsory						
Professors	Doc. dr. sc. Jasmina Obhodaš, assistant professor						
Colaborators	Prof.dr.sc. Tarzan Legović, full professor (retired)						
Entrance conditions	-						
Aim	Familiarize students with results of physics relevant to to environmental and nature protection studies						
Learning outcomes	<p>By completing the course students will be able to:</p> <ol style="list-style-type: none"> 1. understand, use and recalculate physical units; 2. compute derived values of physical variables from measurements; 3. solve simpler problems from mechanics, fluids, heath, electricity, magnetism, optics, modern physics, atmospheric and marine physics; 4. understand goals of research in high energy phasics; 5. understand principles of phsical instruments used in environmental studies; 6. Estimate rates of processes in fresh waters, seas, atmosphere and soil. 						
Connections between students activity, learning outcomes and evaluation	Students activity	ECTS	Learning outcomes	Course activity	Evaluation methods	Points*	
						min	max
	Active participation		1-6	Lectures	Minutes	8	15
	Active participation		1-6	Seminars	Minutes	6	10
	Preparation for the exam		1-6	Problems solving	Exam	4	7
	Total	6				16	32
Consultations	According to the students need						
Teaching form	Lectures		Seminars		Exercises		
No. of hours	15		5		5		
Content	1. Introduction: forces in physics, how laws are established; 2. Mechanics of riid bodies and fluids; 3. Heath; 4. Electricity and magnetism; 5. Optics; 6. Modern physics applications; 7. Statics and dynamics of fluids; 8. Atmospheric physics; 9. Marine physics; 10. Soild physics.						
Compulsory literature	<p>Elert G, Physics Hypertextbook, 2015 http://physics.info/</p> <p>Crowell B. Light and Matter(Newtonian physics, conservation laws, vibrations and waves, electricity and magnetism, optics, the modern revolution in physics. http://www.lightandmatter.com/books.html</p>						
Optional literature	<p>Salby M.L. Physics of the Atmosphere and Climate, Cambridge, 2012.</p> <p>Steward R.H. Introduction to physical oceanography, Texas A&M Univ., 2005. http://oceanworld.tamu.edu/resources/ocng_textbook/contents.html</p> <p>Lal R., Shukla M.K. Principles of Soil Physics, Marcel Dekker, 2004.</p>						
Completion condition	Active participation in the course						
Exam form	Oral and written						
Possible teaching languages	Croatian or English						
Form of quality monitoring	Minutes of lectures and seminars, student questionnaire						