

NAME OF THE COURSE		CLIMATE CHANGE IMPACTS				
Code		Year of study	2., III. or IV. semester			
Course teacher	Darko Koracin, PhD, Full Professor, tenure	Credits (ECTS)	4.0			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30	0	15	
Status of the course	elective	Percentage of application of e-learning	/			
COURSE DESCRIPTION						
Course objectives	The aim of the course is the acquisition of knowledge related to the concepts of weather and climate models, climate balance, and development of procedures to minimize the effects of climate change on people and the environment.					
Course enrolment requirements and entry competences required for the course	Undergraduate qualification (6th level of EQF or CROQF).					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	<p>The student will:</p> <ul style="list-style-type: none"> - Learn basic concepts of weather and climate; - Understand evolution of paleo-climate and future climate change; - Learn characteristics of greenhouse gases and anthropogenic impacts on climate change; - Learn and apply simple climate balance models - Understand basic concepts of numerical global climate models, independently access and analyze model results. - Develop and lead mitigation processes for minimizing and eliminating effects of climate change on humans and the environment; - Present seminars on climate change impacts for the public, undergraduate students, schools, and stakeholders. 					
Course content broken down in detail by weekly class schedule (syllabus)	History of climate evolution with respect to astronomical determinants and human impacts. Greenhouse gases and earth-atmosphere radiation balance. Future projections of emissions of greenhouse gases and other pollutants. Short-term climate variability (El Nino Southern Oscillation, Pacific Decadal Oscillation, North Atlantic Oscillation, Madden-Julian Oscillation). Effects of climate change on the land, atmosphere, and oceans. Climate change impacts on humans and natural environment. Change of hydrological resources in future climate. Basic concepts of global climate models and downscaling to regional climate. Coupling of climate and hydrological models. Climate change impacts on economy and policy regulations.					
Format of instruction	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> seminars and workshops <input checked="" type="checkbox"/> exercises <input type="checkbox"/> <i>on line</i> in entirety <input type="checkbox"/> partial e-learning <input checked="" type="checkbox"/> field work		<input checked="" type="checkbox"/> independent assignments <input type="checkbox"/> multimedia <input type="checkbox"/> laboratory <input type="checkbox"/> work with mentor			
Student responsibilities	Regular attendance of classes. During the semester students should prepare a written assignment (seminar essay)					

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.5	Research		Practical training	1.0
	Experimental work		Report			
	Essay		Seminar essay			
	Tests	0.5	Oral exam	0.5		
	Written exam	0.5	Project			
Grading and evaluating student work in class and at the final exam	Regular and active attendance of classes, seminar essay, oral exam					
Required literature (available in the library and via other media)	Title				Number of copies in the library	Availability via other media
	D. Koracin: lectures given as ppt files;					
	.D. Neelin, 2011: Climate Change and Climate Modeling. Cambridge University Press, ISBN 0521602432, 304 pp					
	M.E. Mann and L.R. Kump, 2008: Dire Predictions: Understanding Global Warming - The Illustrated Guide to the Findings of the IPCC, Daniel Kaveney Publishing, London, ISBN 0756639956, 208 pp.					
	G.B. Bonan, 2002: Ecological Climatology: Concepts and Applications, Cambridge University Press, ISBN 052180476, 568 pp.					
Optional literature (at the time of submission of study programme proposal)	To be defined in accordance with student's particular interests and theme of student's assignment.					
Quality assurance methods that ensure the acquisition of exit competences	Quality assurance will be performed at three levels: (1) University level, through questionnaires; (2) Faculty level by Quality Control Committee; (3) Lecturer's level.					
Other (as the proposer wishes to add)						