NAME OF THE COURSE	Extreme Environmental Phenomena						
Code	PMP264		Year of study	1			
Course teacher	Jadranka Šepić, PhD, Assistant Professor		Credits (ECTS)	4			
Associate teachers			Type of instruction (number of hours)	L	S	E	F
				30	0	15	0
Status of the course	Elective		Percentage of application of e-learning				

COURSE DESCRIPTION	
Course objectives	- provide basic knowledge on extreme processes and conditions in the environment - enable students to extract and analyze extreme processes and conditions - provide techniques and methods for estimating frequency and strength of extremes in a changing climate
Course enrolment requirements and entry competences required for the course	- basics of physics - basics of mathematics
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	It is expected that students will: - gain knowledge on extreme events in the atmosphere, lithosphere and oceans - gain knowledge on statistics of extremes - learn how to extract and analyze extreme events
Course content broken down in detail by weekly class schedule (syllabus)	1. Definition of extremes (2 hours of lectures) 2. Ranking extreme events (2 hours of lectures) 3. Sources of extremes; preconditioning vs. Local effect (2 hours of lectures) 4. Extremes in the atmosphere: El Nino, La Nina, Hurricanes, tropical cyclones, hurricane strength winds, tornados, heat and cold waves (6 hours of lectures) 5. Extreme events in seas and oceans: storm surge, tsunami, meteotsunami, rogue waves, solitons (6 hours of lectures) 6. Extreme events in seismology: destructive earthquakes, landslides, volcanic eruptions (4 hours of lectures) 7. Statistic of extremes (6 hours of lectures) 8. Climate change and environmental extremes (2 hours of lectures)
Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work ☒ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☒ homework
Student responsibilities	Attend at least 70% of lectures and 70% of exercises.

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	Research		Practical training	2
	Experimental work		Report		Homework	
	Essay		Seminar essay	1	(Other)	
	Tests		Oral exam	1	(Other)	
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at the final exam	During the semester, students will analyze a selected extreme event. This analysis will include data analysis, statistical analysis, and estimation of frequency and strength of extremes in future climate. Students will present the results of this

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	analysis in a seminar essay. The final grade is formed based on the practical training (50%), seminar essay (25%), and oral exam (25%).		
	James R. Holton & Gregory J. Hakim **An Introduction to Dynamic Meteorology** Academic Press, 2013.	2	no
Optional literature (at the time of submission of study programme proposal)	Roland B. Stull **An Introduction to Boundary Layer Meteorology** Kluwer, 1988. Emil Julius Gumbel **Statistics of extremes** Dover Publications, 2004.		
Quality assurance methods that ensure the acquisition of exit competences	Exam results statistics and student evaluation through an anonymous survey at the end of the course. The survey is conducted according to the regulations of the University of Split.		
Other (as the proposer wishes to add)			