NAME OF THE COURSE	Introduction to Data Analysis							
Code	PMP165	Year of study	1					
Course teacher	Žarko Kovač, PhD, Assistant Professor Jadranka Šepić, PhD, Assistant Professor	Credits (ECTS)	5					
Associate teachers		Type of instruction (number of hours)	L	S	E	F		
			20		30			
Status of the course	Compulsory	Percentage of application of e-learning						

COURSE DESCRIPTION						
Course objectives	- acquiring basic knowledge of measurement methods in environmental physics - acquiring the basic skills needed to load and graphically display data - train students to apply optimization methods for data processing and noise removal - to train students for independent processing of time series - to acquaint students with more advanced methods of processing time series					
Course enrolment requirements and entry competences required for the course	- basics of physics - basics of mathematics - basic programming					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	- introductory knowledge of measurement methods in environmental physics - knowledge of reading and graphically displaying data - knowledge of linear and nonlinear regression - knowledge and the use of optimization methods in data processing - detection of trend and seasonal signal in a time series - usage of a moving mean as a filter - introductory theoretical knowledge and application of the Fourier transform - introductory theoretical knowledge and application of empirical orthogonal functions					
Course content broken down in detail by weekly class schedule (syllabus)	1. Sampling and measurement methods in environmental physics (1 hour of lectures and 2 hours of exercises) 2. Normal distribution (1 hour of lectures and 2 hours of exercises) 3. Least squares method (2 hours of lectures and 4 hours of exercises) 4. Linear regression (2 hours of lectures and 4 hours of exercises) 5. Nonlinear regression (2 hours of lectures and 4 hours of exercises) 6. Trend and seasonal signal (1 hour of lectures and 2 hours of exercises) 7. Moving mean (1 hour of lectures and 2 hours of exercises) 8. Fourier transform (2 hours of lectures and 4 hours of exercises) 9. Empirical orthogonal functions (3 hours of lectures and 6 hours of exercises)					
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*	Class attendance	1	Research		Practical training	
	Experimental work		Report		Homework	1

activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Essay		Seminar essay		(Other)	
	Tests		Oral exam	2	(Other)	
	Written exam		Project	1	(Other)	

Grading and evaluating student work in class and at the final exam	During the first 7 weeks of classes, students receive 5 homework assignments from the first 5 teaching units. These assignments are handed over at the end of the 8th week of classes. During the next 7 weeks of classes, students receive 5 new homework assignments from the last 4 teaching units. These assignments are handed over at the end of the 15th week of class. Students who submit assignments on time and achieve more than 50% of the possible points are exempted from writing the written part of the exam. Students who do not pass assignments or achieve less than 50% of the possible points must take a written exam. In the 8th week of classes, students are given a project assignment that they must submit by the end of the semester. The final grade is formed on the basis of homework / exam (1/3 of the grade), project assignment (1/3) and answers to the oral exam (1/3) of the grade.

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	William Menke, Joshua Menke **Environmental Data Analysis with MATLAB** Elsevier, 2016	0	yes

Optional literature (at the time of submission of study programme proposal)	Zhihua Zhang **Environmental data analysis: Methods and applications** Walter de Gruyter, 2017 David M. Glover, William J. Jenkins, Scott C Dooney **Modelling methods for marine science** Cambridge University Press, 2011.
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)	