

NAME OF THE COURSE		Data mining					
Code	PMIH20	Year of study					
Course teacher	doc.dr. sc. Hrvoje Kalinić	Credits (ECTS)		5,0			
Associate teachers		Type of instruction (number of hours)		L	S	E	F
				30		30	
Status of the course		Percentage of application of e-learning					
COURSE DESCRIPTION							
Course objectives	The goal of this course is to introduce the students to basic concepts and algorithms in data mining. By the end of the course the students should be familiar with basic processes and skills necessary in data mining.						
Course enrolment requirements and entry competences required for the course	Applied statistics (suggested)						
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Familiarity with data preprocessing, exploration and visualization 2. Familiarity with algorithms for classification, association and clustering 3. Understanding the concept of learning algorithm, in particular supervised learning, reinforcement learning, and unsupervised learning 4. Understanding the problem of overfitting and curse of dimensionality						
Course content broken down in detail by weekly class schedule (syllabus)	Aims and goals of data mining (2) Types of data and data preprocessing (2) Data exploration and visualization (2) Data similarity: correlation and entropy measures (4) Classification: Decision trees (2) Alternative techniques for classification: nearest neighbor, Bayes classifier, neural network... (4) Midterm (2) Data association (2) Clustering: k-nearest neighbor, self-organizing maps... (4) Learning algorithms (2) Dimensionality reduction techniques (2)						
Format of instruction	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> seminars and workshops <input type="checkbox"/> exercises <input type="checkbox"/> on line in entirety <input type="checkbox"/> partial e-learning <input type="checkbox"/> field work			<input type="checkbox"/> independent assignments <input type="checkbox"/> multimedia <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> work with mentor <input type="checkbox"/> homework assignments <input type="checkbox"/>			
Student responsibilities	Participate in course activities. Homework. Exam.						
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)	Name	Ects	Name	Ects	Name	Ects	
	Class attendance	1	Research		Experimental work		
	Oral exam	1	Report		Homework assignments		
	Seminar essay		Essay				

	Tests	1	Practical training		
	Written exam	1	Project	1	
Grading and evaluating student work in class and at the final exam					
Student activities in class (20%) Project (40%) Exam (40%)					
Required literature (available in the library and via other media)	Title			Number of copies in the library	Availability via other media
	Tan, P.-N., Steinbach, M., Kumar, V.: Introduction to data mining, Pearson Education, Inc., 2006			0	
	Lecture notes in Data Mining, Hrvoje Kalinić			0	
Optional literature (at the time of submission of study programme proposal)	Wu, X. et al.: Top 10 algorithms in data mining. Knowl. Inf. Syst., Vol. 14, No. 1. (2007), pp. 1-37. 1. (2007), pp. 1-37. Lecture notes available on the Internet including solved problems and additional links				
Quality assurance methods that ensure the acquisition of exit competences	Students feedback, students results and self-evaluation				
Other (as the proposer wishes to add)					