

COURSE NAME		Coding theory			
Code	PMM808	Year of study	2nd year of graduate study		
Course teacher	Joško Mandić	Credits (ECTS)	5,0		
Associate teachers		Type of instruction (number of hours)	L	S	E
			30	30	
Status of the course	Required and elected	Percentage of application of e-learning	50		
COURSE DESCRIPTION					
Course objectives	The aim of the course is to acquaint students with the fundamental techniques in coding theory. The emphasis is on the construction of a variety of linear codes using various mathematical objects, such as design. Also, computer programs are being used to construct and analyze linear codes.				
Course enrolment requirements and entry competences required for the course	Required competences: knowledge of linear algebra.				
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	<p>The student is able to:</p> <ul style="list-style-type: none"> - define codes and their basic parameters - analyze and differentiate different types of codes - explain connection between designs and linear codes - construct and analyze codes using computer program. 				
Course content broken down in detail by weekly class schedule (syllabus)	<ul style="list-style-type: none"> - Introduction to coding theory (2) - Sphere packing and Shannons theorem (2) - Finite fields (2) - Introduction to program GAP (2) - Introduction to package Guava (2) - Linear codes (2) - Examples of linear codes (2) - Designs and their codes (2) - Hamming codes (2) - Perfect codes (2) - Reed-Solomon codes (2) - Codes over subfields (2) - Cyclic Codes (2) - New codes from old (2) - Weight and distance enumeration (2) 				
Format of instruction	Lectures and seminars				
Student responsibilities	Attending classes and writing seminar paper				
Screening student work (name the proportion of ECTS credits for each)	<p>Attending classes: 1 ECTS, Seminar paper: 1 ECTS. Oral exam: 3 ECTS,</p>				

<p><i>activity so that the total number of ECTS credits is equal to the ECTS value of the course)</i></p>	
<p>Grading and evaluating student work in class and at the final exam</p>	<p>Seminar paper and final oral exam</p>
<p>Required literature (available in the library and via other media)</p>	<p>J.I. Hall, Notes on Coding Theory, 2010</p>
<p>Optional literature (at the time of submission of study programme proposal)</p>	<p>1. Assmus, J.D. Key, Designs and their codes, Cambridge University Press, London, 1992 2. J.H. van Lint, Introduction to Coding Theory, Springer-Verlag, Berlin, 1982. 3. S. S. Adams, Introduction to Algebraic Coding Theory (With Gap), 2008</p>
<p>Quality assurance methods that ensure the acquisition of exit competences</p>	<p>Statistics of test results and student evaluation via anonymous questionnaires at the end of the course. The survey is conducted according to the rules of the University of Split.</p>
<p>Other (as the proposer wishes to add)</p>	