

COURSE NAME		Conic sections			
Code	PMM921	Year of study	1st year of graduate study		
Course teacher	Nikola Koceić Bilan	Credits (ECTS)	5,0		
Associate teachers		Type of instruction (number of hours)	L	S	E
			30		30
Status of the course	Elective	Percentage of application of e-learning	30		
COURSE DESCRIPTION					
Course objectives	<p>Students will:</p> <ul style="list-style-type: none"> -acquire a basic knowledge on conics -be introduced with the algebraic and synthetic approach to conics -learn the Bošković approach to conics via focus and diretrix -be introduced with approach to conics via intersections of the plane and cone (conic sections). 				
Course enrolment requirements and entry competences required for the course	<p>Course enrolment : None</p> <p>Entry competences : Student should be comfortable with using all concepts of Euclidean plane geometry.</p>				
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	<p>Upon successful completion of this course students will be able to:</p> <ul style="list-style-type: none"> -characterize conics using the algebraic approach -prove basic properties of ellipse, hyperbola and parabola -characterize conics using the Pappus-Bošković approach - characterize ellipse, hyperbola and parabola as the conic sections -apply basic conics properties to various problems -describe ellipse, hyperbola and parabola as the perspective collinear circle image. 				
Course content broken down in detail by weekly class schedule (syllabus)	<ul style="list-style-type: none"> - Algebraic approach to conics. (4) -Ellipse definition. Properties and elements of an ellipse (tangent, main circle...) (5) - Hyperbola definition. Properties and elements of a hyperbola (tangent, main circle...). Hyperbola asymptotes. (7) -Parabola definition. Properties and elements of parabola. (4) -Bošković theorem. (2) -Dandelin's theorems. Dandelin spheres. (4) -Ellipse, hyperbola and parabola as the perspective image of circle. Conjugate diameters. Chords of ellipse, hyperbola, parabola. (4) 				
Format of instruction	Lectures and exercises.				
Student responsibilities	Attending classes. Students are expected to be present at least 70% of classes.				
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)	<p>Attending classes: 2 ECTS.</p> <p>Partial exams/Written exam: 2 ECTS</p> <p>Final exam: 1 ECTS.</p>				

Grading and evaluating student work in class and at the final exam	Two partial written exams / one final written exam and final oral exam. There are 2 partial written exams during a semester. Passing both partial exams enables students to take an oral exam. Successfully passing the oral exam leads to successful completion of the course. Final grade is derived as the arithmetic mean of scores in partial exams (or a written exam) and the oral exam. In the case of failure in partial exams or the oral exam students must undergo a written exam before taking oral exam (again). Written exam consists of practical and theoretical exercises.
Required literature (available in the library and via other media)	Mirošević, N. Koceić Bilan, J. Jurko, <i>Različiti pristupi čunjosječnicama</i> , 27. e.math B. Pavković, D. Veljan, <i>Elementarna matematika 2</i> , Školska knjiga, Zagreb, 1995. A. Marić, <i>Čunjosječnice</i> , EM24, Element, Zagreb, 2004.
Optional literature (at the time of submission of study programme proposal)	D. Palman, <i>Geometrijske konstrukcije</i> , Element, Zagreb, 1996. Pavković, Veljan, <i>Elementarna matematika 1</i>
Quality assurance methods that ensure the acquisition of exit competences	Summarizing test results and conducting an anonymous student survey at the end of the course. The survey is conducted according to the rules of the University of Split.
Other (as the proposer wishes to add)	