

<b>Study programmes: Bachelor studies – Informatics</b>				
<b>Course name: M131 - Geometry</b>				
<b>Lecturers:</b> Vladica S. Andrejić, Miroslava Ž. Antić, Srđan N. Vukmirović, Ivan S. Dimitrijević, Mirjana Đ. Đorić, Zoran P. Rakić i Tijana Z. Šukilović.				
<b>Status: Compulsory</b>				
<b>ECTS: 6</b>				
<b>Attendance prerequisites: None</b>				
<b>Course aims: The aim of this course is to introduce students to the general goals and objectives of the regular Geometry course, as well as to cover some computer oriented topics.</b>				
<b>Course outcome: On completion of this course students will be able to demonstrate basic knowledge of Geometry and its applications to computer science.</b>				
<b>Course content:</b> <b>Inner product, cross product and scalar triple product with applications. Coordinate transformations. Affine transformations; matrix representation of affine maps.</b> <b>Plane geometry: line, distance from a point to a line, conic sections, quadratic curves, canonic equations of curves, polygonal line and polygon, interior of a simple polygon, triangulation of a simple polygon, convex hull, Bezier curves, de-Casteljau algorithm with applications.</b> Lines and planes in 3-dimensional space. Affine maps in 3-dimensional space. Isometric maps: rotation about a line, Euler's theorem. Projection maps onto a plane. Polyhedral surface and polyhedron. Definition of polyhedral surface. Orientation. Platonic solids. Euler characteristic.				
<b>Literature:</b> <b>S. Vukmirović, T. Šukilović, <i>Geometrija za informatičare</i>, Matematički fakultet, Beograd, 2015.</b> <b>Z. Lučić, <i>Euklidska i hiperbolička geometrija</i>, Beograd 2007.</b> <b>M. de Berg, M van Kreveld, M.Overmars, O. Schwarzkopf, <i>Computational geometry</i>, Springer, 2000.</b> <b>E. Lengyel, <i>Mathematics for 3D Game Programming and Computer Graphic</i>, Course Tehnology, 2012.</b>				
<b>Number of hours: 5</b>	<b>Lecures: 3</b>	<b>Tutorials: 2</b>	<b>Laboratory: -</b>	<b>Research: -</b>
<b>Teaching and learning methods: Frontal / Individual</b>				
<b>Assessment (maximal 100 points)</b>				
<i>Course assignments</i>	<b>points</b>	<i>Final exam</i>	<b>points</b>	
Lectures	-	Written exam	-	
Exercises / Tutorials	-	Oral exam	-	
Colloquia	<b>40</b>	<i>Written-oral exam</i>	<b>60</b>	
Essay / Project	-			