

COURSE NAME		Introduction to differential geometry			
Code	PMM120	Year of study	1st and 2nd year of graduate study		
Course teacher	Joško Mandić	Credits (ECTS)	6,0		
Associate teachers		Type of instruction (number of hours)	L	S	E
			30		30
Status of the course	Compulsory and elective	Percentage of application of e-learning	30		
COURSE DESCRIPTION					
Course objectives	Goal of this course is to familiarize students with basic terms of differential geometry such as theory of curves in space (and on plane) and theory of surfaces in Euclid space. Thus, students will be able to understand more advanced course in differential geometry which would contain Riemann geometry and multiplicity. Furthermore, application of acquired knowledge is possible in other science fields, eg. in physics.				
Course enrolment requirements and entry competences required for the course	Required competences: knowledge of mathematical analysis and linear algebra.				
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Student will be able to: -define regular curves and surfaces -explain curvature and torsion of a curve -apply first and second fundamental form of surface -analyse surface using normal, Gaussian and mean curvature				
Course content broken down in detail by weekly class schedule (syllabus)	<ul style="list-style-type: none"> -Regular curve (1) -Lengths of curves (1) -Curvature and torsion (2) -Frenet formuleas (2) -Fundamental theorem of space curves (2) -Regular surfaces (1) -Tangent plane to regular surface (2) -First fundamental form of surface. (2) -Orientation of surface (1) -Second fundamental form of surface. (2) -Normal curvature (2) -Gaussian and mean curvature (2) -Special curves on surfaces: line of curvature, asymptotic curve and geodesic. (2) -Locally isometric surfaces (2) - Theorema Egregium. (2) - Fundamental theorem of surfaces in space (2) - Gauss-Bonnet theorem. (2) 				
Format of instruction	Lectures and exercises				
Student responsibilities	Attending classes and homework assignments				
Screening student	Attending classes and homework assignments: 2 ETCS.				

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)	Written exam: 2 ETCS. Oral exam: 2 ETCS.
Grading and evaluating student work in class and at the final exam	Written and oral exam
Required literature (available in the library and via other media)	N. Ujević, Predavanja iz uvoda u diferencijalnu geometriju, script.
Optional literature (at the time of submission of study programme proposal)	1.M. P. Do Carmo, Differential Geometry of Curves and Surfaces, Prentice-Hall, 1976. 2.R.S. Millman, G.D. Parker, Elements of Differential Geometry, Prentice-Hall Inc., New Jersey/London, 1977
Quality assurance methods that ensure the acquisition of exit competences	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.
Other (as the proposer wishes to add)	