ERASMUS+

EU programme for education, training, youth and sport

Incoming student mobility

Name of UNIOS University Unit: SCHOOL OF APPLIED MATHEMATICS AND INFORMATICS

COURSES OFFERED IN FOREIGN LANGUAGE
FOR ERASMUS+ INDIVIDUAL INCOMING STUDENTS

Department or Chair within the UNIOS Unit	School of Applied Mathematics and Informatics

Study program	Undergraduate university study programme in Mathematics

Study level	Undergraduate (Bachelor)

Course title	Multivariable Calculus
Course code	M009
Language of instruction	English
Brief course description	Syllabus. 1. Real multivariable functions. Space Rn. Level curves and level surfaces. Limit and continuity. 2. Partial derivatives and differentiability of multivariable functions, gradient. Geometric interpretation: equation of tangential plane and normal on surface. Partial derivatives of higher order. Partial derivatives of implicit functions and compound. Directional derivative. 3. Vector functions. Differentiability of vector multivariable function, Jacobi matrix. Differentials of higher order. Rotation and divergence of vector field. Potential and solenoidal fields. 4. Applications of differential calculus of multivariable functions: mean value theorems, extremes and conditional extremes. 5. Multiple integrals. Double integral on rectangle: notion, properties, Fubini theorem. Double integral on general domains: definition, computation. Change of variables theorem, polar coordinates. Applications of double integral. Triple integral: computation, cylindrical and

	spherical coordinates, applications. 6. Line integral of the first and the second kind: definition, properties, computation, applications. Green theorem. 7. Surface integral of the first and the second kind: definition, properties, computation, applications. Divergence theorem. Stokes theorem.
Form of teaching	Consultative teaching.
Form of assessment	Lectures and exercises are mandatory. The exam consists of a written and an oral part and it can be taken after the completion of lectures and exercises. Acceptable mid-term exam scores replace the written examination.
Number of ECTS	7
Class hours per week	3+2+0
Minimum number of students	
Period of realization	Winter semester
Lecturer	Krešimir Burazin