

Incoming student mobility

Name of UNIOS University Unit: DEPARTMENT OF MATHEMATICS

COURSES OFFERED IN FOREIGN LANGUAGE FOR ERASMUS+ INDIVIDUAL INCOMING STUDENTS

Department or Chair within the UNIOS Unit	Department of Mathematics
Study program	<ul style="list-style-type: none"> • <i>Undergraduate university study programme in Mathematics and Computer Science</i> • <i>Undergraduate university study programme in Mathematics</i>
Study level	Undergraduate (Bachelor)
Course title	Applications of Differential and Integral Calculus I
Course code	M062
Language of instruction	English
Brief course description	<p>Syllabus.</p> <ol style="list-style-type: none"> 1. Differential calculus. Differentiation and applications in physics (velocity, acceleration), economy (marginal costs and revenues, the rate of change in demand and supply, elasticity), biology (rate of growth of a living organism with and without restriction) and chemistry (the rate of chemical reaction). Parametric and polar function and its derivative. Vector-valued function of a scalar argument and derivative. Implicit functions and derivative. Some applications (tangent line, normal line, curvature, evolutes). Extremes of functions of one variable with various applications in physics, economy, biology and chemistry. Derivation of physical laws and equations (e.g., Kepler's laws from Newton's second law of motion and the law of gravity). 2. Integral calculus. The problem of calculating the surface area bounded by the graph function. Length arcs. Calculating the surface area and the volume of a solid obtained by rotating the curve. Integral of the vector-valued function of a scalar argument. Applications of the definite integral in physics (hydrostatic pressure and force, moments and the centre of mass of a thin plate with uniform density, forces energy and work).
Form of teaching	Consultative teaching.

ERASMUS+

EU programme for education, training, youth and sport

Form of assessment	Lectures and exercises are obligatory. The exam consists of a written and an oral part. After the completion of lectures and exercises students can take the exam. Acceptable mid-term exam scores replace the written examination.
Number of ECTS	4
Class hours per week	1+2+0
Minimum number of students	
Period of realization	Summer semester
Lecturer	Krešimir Burazin