

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	Applications of Calculus II
Course code	M063
Language of instruction	English
Brief course description	<p>Syllabus.</p> <ol style="list-style-type: none"> 1. Problems of extremes and conditional extremes with some applications in geometry, physics, economics, biology, and chemistry. 2. Applications of integrals. Computation of lengths, areas and volumes. Calculation of the value of magnitude (Mass, charge, etc.) if density of this magnitude is known. Computation of coordinates of the center of gravity and moment of inertia, computation of the work of force. 3. Applications of vector analysis. Potential and solenoidal fields. Problems of motion. Derivation of physical laws and equations (e.g., Kepler's laws from Newton's second law of motion and the law of gravity, the law of conservation of energy in the potential (conservative) force field, equation of transverse oscillations of an elastic string from the law of conservation of momentum). 4. Applications of complex analysis. Computation of real integrals. Application of conformal mappings. Harmonic functions and the Dirichlet problem for Laplace's equation. Stationary plane flow. 5. Applications of differential equations in geometry, physics, economics, biology, chemistry and medicine (e.g., chase curves, mechanical vibrations, electric circuits, the dynamics of chemical reaction, models of consumer behavior, population models,

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	models of epidemics).
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 is taken after the completion of lectures and exercises. 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	Winter semester
Lecturer	Snježana Majstorović Ergotić