

## 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                             | <ul style="list-style-type: none"> <li>• Undergraduate university study programme in Mathematics and Computer Science</li> <li>• Undergraduate university study programme in Mathematics</li> <li>• Graduate Mathematics and Informatics Education Study Programme</li> </ul>   |
| Study level                               | Undergraduate (Bachelor)  |
| Course title                              | Vector Spaces   |
| Course code                               | M099  |
| Language of instruction                   | English   |
| Brief course description                  | <p>Syllabus.</p> <ol style="list-style-type: none"> <li>1. Dual space, dual basis and dual operator. Canonical isomorphism between the vector space and its bidual space. Nilpotent operators, cyclic bases and elementary Jordan cells. Reduction of the nilpotent operators.</li> <li>2. Semisimple operators. Polynomials of the operators. Relatively simple polynomials.</li> <li>3. Hermitian and normal operators. Spectral theorems. Positive operators and isometries. Polar form.</li> <li>4. Operators on complex and real vector spaces. Complexification of vector space and complexification of an operator. Operators on real unitary spaces. Operators on normed spaces.</li> </ol> |
| Form of teaching                          | Consultative teaching.  |
| Form of assessment                        | Attending lectures and exercises is required. The exam consists of a written and oral part, and can be taken after the completion of lectures and exercises. During the semester students can take preliminary exams that replace the written examination.  |
| Number of ECTS                            | 6   |

## ERASMUS+

EU programme for education, training, youth and sport

|                            |                 |
|----------------------------|-----------------|
| Class hours per week       | 2+2+0           |
| Minimum number of students |                 |
| Period of realization      | Winter semester |
| Lecturer                   | Ivan Matic      |