Incoming student mobility

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	Graduate Mathematics and Informatics Education Study Programme

Study level	Graduate (master)

Course title	Computational-Thinking And Programming II
Course code (if any)	I063
Language of instruction	English
Brief course description	Syllabus. 1. Introduction. Basic concepts and definitions. Types of data and commands from elementary to complex data structures - from commands to functions and programs. Abstract structure. Algorithms. Asymptotic analysis. 2. Solving recursion. 3. Sequential and binary search. Procedures sorting: bubble sort, insertion sort, heap sort, selection-sort, quick sort and others. 4. A divide-and-conquer algorithms: N-th power of. N-th Fibonacci number. Merge sort. 5. Linear data structures: Arrays. Lists (single and double linked, circular). Queues. Stacks. 6. Non-linear data structures: trees. The representation of the tree using the array. Tree search. Heap. Binary tree search (Binary Tree Search). Graphs. Graph traversal.
Form of teaching	Consultative teaching.
Form of assessment	In lectures, students will learn programming with a focus on the implementation of elementary data structures and algorithms. In exercises, students solve programming tasks where they use of the basic data structures. In programming tasks, emphasis is on fairness and efficiency of the implemented algorithm. During the semester,

	students solve assignments, which consist of programming tasks. The theoretical and practical knowledge will be examined in the written exam. Satisfactory scores on programming assignments and quizzes can replace written exam.
Number of ECTS	5
Class hours per week	2+2+0
Minimum number of students	
Period of realization	Summer semester
Lecturer	Ivana Kuzmanović Ivičić