

Study program		Level of studies	Third cycle			
		Title of the study program	Science and mathematics education			
COURSE						
Course title		Selected chapters of computer science teaching methodology				
Course ID	Semester	Course status	ECTS credits	Contact hours		
EDU 654	II	Elective	10	60		
Lecturers	Lecturer in charge					
	Other lecturers					
Course aims	innovating, conducting and analysing all types of computer science teaching, as well as preparing them for lifelong learning in information and communication technologies (ICT).					
CONTENT						
Teaching units				Contact hours		
				L	E/S	C
<p>-Information and Communication Technology (ICT): Scientific aspects of ICT: theoretical computing as a fundamental mathematical scientific discipline, computing as a technical science, information science as a social science, ICT as an important tool of all scientific areas. ICT as an activity: ICT as a profession, application of ICT in all areas human activities. ICT terminology. ICT in the education system: education from ICT, the use of ICT in education in other fields, the need for lifelong education in the field of ICT.</p> <p>-ICT education: Concepts of computing, digital and information Literacy. Standards in ICT education. International standards IT Literacy: European Computer Driving License (ECDL)</p> <p>-The goal and tasks of computer science teaching. Objective of computer science teaching: general objective and specific objectives for each stage of education. Three basic components of IT education: acquisition of basic knowledge on ICT concepts (time invariants - assumption lifelong education), the development of ICT skills (agility in navigating environment of the current ICT - practical application of ICT), development of the ability to solve problems using ICT. Tasks of computer science teaching: educational (material, functional and educational).</p> <p>-Principles of computer science teaching. The principle of appropriateness. The principle of graduality. Principle science. The principle of interest, awareness and activity. The principle of dawn and abstraction. The principle of problem. The principle of permanence of knowledge, skills and habits. The principle of economy and rationalization. The principle of modernity and historianism. Principle individualisation.</p> <p>-Methods of reasoning in computer science teaching: The method of analysis and synthesis (especially in continue programming). Analogy method (especially in practical teaching in itinerary). Method of generalization and specialization. Method abstraction and concretization. Planning the teaching material and the order of execution. Structure and types of lessons.</p> <p>- Teaching procedures. Animating students. Principles of didactic theory and their application in computer science classes. Cybernetic methods. Heuristic, programmatic and problem teaching. Analysis and synthesis, analogy, algorithmic approach to problem solving. Selected topics from the teaching curriculum informatics - didactic approach.</p> <p>- Web Technologies</p>				30	30	
LITERATURE			ASSESSMENT OF LEARNING			
<p>[1] M. Pavleković, Metodika nastave matematike s informatikom I, Element, Zagreb, 2001.</p> <p>[2] Coursebooks for computer science for high schools and university level.</p> <p>[3] Lecture notes</p>			Assessment method	Points	Threshold	
			1.	Partial exams	25	13
			2.	Seminar papers	25	12
			3	Final exam	50	30
			4.			
			Total	100	55	