

IP001	Informatics Teaching Methods I	P	P	S	ECTS 6
		2	1	1	

Course objective. The aim of this course is to theoretically and practically train students for high-quality preparation, implementation and analysis of the teaching process in informatics education.

Prerequisites. Undergraduate mathematics or computer science study programme.

Course content.

1. Basic concepts, computing, computer science and information science, computer engineering, information communication technology, software engineering, information systems; The relation of information technology and other sciences.
2. Teaching informatics and its role in the education of future teachers. Computer science education as a multidisciplinary scientific field. Specifics of informatics education in relation to the other areas of education.
3. CNES, K-12, CS213. Literacy, agility, necessary knowledge and skills: concepts, problem-solving skills, skills of IT. Alternative approaches to curriculum design.
4. The goal of informatics education: general purpose of each stage of education. The three basic components of computer science/IT education: acquisition of basic knowledge about the concepts of informatics (time invariant - a prerequisite for lifelong learning), skills development of ICT (agility in the handling of the environment of the current ICT - the practical application of ICT), the development of problem solving skills by using ICT. The tasks of teaching informatics: education (material), functional and educational.
5. Models of teaching in informatics education: seminars, learning through discovery, situational learning. Pedagogical tools. Teaching in the computer lab.
6. Evaluation in teaching informatics. Design issues. The evaluation of student projects.
7. Communication and planning classes. Organizing knowledge for teaching.

LEARNING OUTCOMES

No.	LEARNING OUTCOMES
1.	Distinguish computer science as one of the fundamental sciences in other related disciplines.
2.	Enact teaching using the most appropriate models of teaching according to the content, type of school, age and individual characteristics of students.
3.	Apply modern tools for teaching programming.
4.	Analyze curriculum, plan lessons, organize teaching.
5.	Identify the factors that hinder the objective evaluation and mitigate their effects.

RELATING THE LEARNING OUTCOMES, ORGANIZATION OF THE EDUCATIONAL PROCESS AND ASSESSMENT OF THE LEARNING OUTCOMES.

TEACHING ACTIVITY	ECTS	LEARNING OUTCOME **	STUDENT ACTIVITY*	EVALUATION METHOD	POINTS	
					min	max
Attending lectures and exercises	1	1-5	The presence at lectures, discussions, teamwork and independent	Attendance lists, tracking activities	8	10

			work on assignments			
Assignments	1	1-5	Solving problems	Verification of correct answers (evaluation)	7	15
Seminar	1	1-5	Writing seminar paper	Public presentation	5	15
Written exam (Mid-terms)	2	1-5	Preparing for the written test	Verification of correct answers (evaluation)	20	40
Final exam	1	1-5	Revising	Oral exam	10	20
TOTAL	6				50	100

Teaching methods and knowledge assessment. Lectures, exercises and seminars are obligatory. Students are expected to regularly attend classes (obligatory presence on at least 85% of the lectures, exercises and seminars). Other requirements for students include: active participation in lectures, exercises and seminars, writing and presentation of seminar papers. Seminar papers will be evaluated. The examination consists of written and oral part.

Can a subject taught in English: Yes

Basic literature:

1. V. Galešev et al., Informatics and Computing: methodical manual for teachers, SysPrint, Zagreb, 2006.
2. O. Hazzan, T. Lapidot, N. Ragonis, Guide to Computer Science Teaching: an activity based approach, Springer, 2011.

Recommended literature:

1. Journals for computer science
2. Textbooks for Primary and Secondary School