



## SYLLABUS OF THE SUBJECT "INFORMATICS"

<b>The same base of the subject</b>	
<b>Academic unit:</b>	Faculty of Life and Environmental Sciences
<b>Subject title:</b>	Informatics
<b>Program:</b>	Forestry and Environmental Sciences (SHPM)
<b>Level:</b>	Bachelor
<b>Statusi lëndës:</b>	OBLIGATORY
<b>Year of studies:</b>	I
<b>Number of hours per week:</b>	2/2
<b>Credit value – ECTS:</b>	5
<b>Time / location:</b>	10 <sup>00</sup> -11 <sup>30</sup> : 12 <sup>00</sup> -13 <sup>30</sup> : 13 <sup>45</sup> -15 <sup>15</sup> / location 520
<b>Subject teacher:</b>	Prof. Asoc. Dr. Mariana Nikolla
<b>Contact details:</b>	mnikolla@ubt.edu.al
<b>Course description:</b>	<p>This course is designed to serve students as an introduction to the fundamental principles and best practices of computer science. Algorithmic Foundations of Computer Science. Windows Operating System. Basic types of data displayed on the computer. Turing algorithms and Turing machines. Basic database. Programming languages. The Internet and the Web. This course examines the algorithmic fundamentals of computer science, the Windows operating system, and the basic types of data that appear on computers. Subjects covered in this course include algorithms, fundamentals of computer science, the Windows operating system, the basic types of data that appear on computers. At the same time, this course provides students with knowledge of algorithmic problems, programming languages, office tools and the Internet. Most of the lecture time will be spent discussing and solving various tasks using computer-related tools.</p>
<b>Purpose of the course:</b>	<p>The purpose of this course is to teach students to identify the components of a computer system, the historical evolution of computers, the representation of data in the binary pattern sequence, the basic types of data that appear in computers, algorithms and Turing machines, the basics of basic data, etc. programming languages, Internet and Web. Developing students' skills to understand the basic concepts of a computer system, to further understand the process of planning, creating plans and implementing non-computer marketing strategies is an important advantage of this course.</p>
<b>Learning outcomes:</b>	<ul style="list-style-type: none"> <li>• With the end of this course, students will be able to:</li> <li>• Understand the foundations, evolution and concepts of computers</li> </ul>



	<ul style="list-style-type: none"> <li>• Familiar with the basic concepts and functions of algorithms, databases, Internet and Web, as well as Artificial intelligence.</li> <li>• Know about word processing programs and operating systems.</li> <li>• To know about the application of professional programs in their field.</li> <li>• Know how to design diagrams and graphics.</li> <li>• To form skills for research in databases of exact sciences and the environment.</li> </ul>		
<b>Student workload (should correspond to the student's learning outcomes)</b>			
Activity	Hours	Day/Week	Total
Lectures	2	15	30
Theoretical/laboratory exercises	2	15	30
Practical work	1	3	3
Contacts with the teacher/consultations	1	15	15
Field exercises	1	3	3
Colloquiums, seminars	2	2	4
Homework	1	9	9
Student's independent study time (in the library or at home)	1	15	15
Final exam preparation	2	5	10
Time spent on assessment (tests, quizzes, final exam)	2	2	4
Projects, presentations, etc	2	1	2
<b>TOTAL</b>			125
<b>Teaching methodology:</b>	Lectures, exercises, colloquiums, course projects, consultations, exams, homework.		
<b>Evaluation methodology:</b>	Regular and active attendance: 10%, mid-term tests (interviews): 20%, Course project: 10%, Final exam: 60%.		
<b>LITERATURE</b>			
<b>Primary literature:</b>	Written lectures.		



	M. Schneider, J. Gersting, Invitation to Computer Science, 8th edition, Cengage, 2019. Invitation to Computer Science Lab Manual, 5th edition, Course Technology, 2010.
<b>Additional literature:</b>	J. G. Brookshear, Computer Science, an Overview, 11th edition, Addison Wesley, 2012. ICS lab manual, 2010.

Designed lesson plan:		
Week	Lectures	Exercise
<i>First week:</i>	Presentation of the syllabus; entry definition of computer science; algorithms; A brief history of computing.	Computer hardware; Input/output devices
<i>Second week:</i>	Algorithmic foundations of computer science Presentation of algorithms; Examples of algorithmic problem solving.	Hard disk formatting; Antivirus installation; Utility programs
<i>Third week:</i>	Efficiency of algorithms; Attributes of algorithms; Efficiency measurement; Analysis of algorithms.	Computer network connection; Shared folders
<i>Fourth week:</i>	Building blocks Binary number system; Boolean logic and gates; Construction of computer circuits.	MS Word: Index, Table of Contents, Mail merge
<i>Fifth week:</i>	Organization of computer systems. Computer system components; Von Neumann's architecture; Other architectures	MS Excel: Formulas, SUM, Percentage, IF, Nested IF, AND, OR
<i>Sixth week:</i>	Introduction to system software and virtual machines. Assemblers and assembly language; Operating systems	MS Access: Tables, Primary Keys, Forms, Linking Forms
<i>Seventh week:</i>	Test 1	Repetition of exercises Reinforcement for test 1



<i>Eighth week:</i>	Computer networks, the Internet and the World Wide Web Basic concepts of networks; Communication protocols; Network services and benefits.	C compiler setup, path setting, opening, compiling
<i>Nine week:</i>	Information security; Threats and defenses; Coding; Introduction to high-level programming languages; Progress of languages; Language family	Error detection/debugging, clrscr, getch
<i>Tenth week:</i>	The Tower of Babel Procedural languages; Special purpose languages.	Data types
<i>Eleventh week:</i>	Language compilers and translation; The compilation process.	Variables, variable names, and related errors
<i>Twelfth week:</i>	Computing models Computing agent model; Model of an algorithm; Turing machine examples; Problems without solutions	Variables, variable names and related errors; Declaration, initialization
<i>Thirteenth week:</i>	Simulation and modeling Computer model; Electronic commerce and databases	Variables, variable names and related errors; Getting input values from the user
<i>Week Fourteen:</i>	Artificial intelligence Division of work; Representation of knowledge; Duties of acquaintances; Robotics	Variables, variable names and related errors; Implementation of equations and simple mathematical formulas
<i>Fifteenth week:</i>	The final test	Repetition of exercises; Reinforcement for the final test
<b>Academic policies and code of conduct</b>		
Students are obliged to regularly attend lectures, participate in study visits to the field (excursion). Switching off mobile phones, entering the classroom on time and keeping quiet in class are also mandatory.		