# INFORMATICS

| Basic data of the subject | |
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| **Academic Unit:** | Faculty of Life and Environmental Sciences |
| **Course title:** | Informatics |
| **Study program:** | Agribusiness |
| **Level:** | Bachelor (BSc) |
| **Course status:** | Elective (E) |
| **Study year:** | 1 year / 1 semester |
| **Number of hours per week:** | 2 + 2 |
| **Credit value – ECTS:** | 6 ECTS |
| **Time / location:** | To be announced |
| **Lecturer:** | Prof. asoc. dr. Arsim Susuri |
| **Contact details:** | arsim.susuri@uni-prizren.com |
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| **Course description:** | This course is designed to serve students as an introduction to the basic principles of, definitions and best practices of computer science. Algorithmic basics of computer science. Windows operating system. Basic types of data that appear on computers. Turing's algorithms and Turing machine. Basic databases. Programming languages. The Internet and the Web. Internet of Things. This course examines algorithmic basics of computer science, Windows operating system and basic types of data that appear on computers. Subjects covered in this course include algorithms, basics of computer science, Windows operating system, basic types of data that appear on computers. At the same time, this course provides students with insights into the problems of algorithms, programming languages, Office tools and the Internet. Majority of the lecture time will be spent in discussing and solving various tasks by using computer related tools. |
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| **Course objectives:** | The objective of this course is to teach students to identify the components of a computer system, the historical evolution of computers, presentation of data in binary pattern sequence, basic types of data that are displayed on computers, Turing's algorithms and machine, basic databases, programming languages, Internet, and the Web. Developing students' skills to understand basic concepts of a computer system and other applications and to understand the process of planning, designing and implementing computer marketing strategies is an important priority of this course. |
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| **Learning outcomes**: | Upon successful completion of this course, students will be able to demonstrate understanding and application of the following skills:<br>• Understand the foundations, evolution, and concepts of computers.<br>• Familiar with the basic concepts and functions of algorithms, databases, the Internet and the Web, and Artificial Intelligence.<br>• Know about word processing programs and operating systems.<br>• To know about applying professional programs in their field.<br>• Know how to draw diagrams and graphics. |

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| | • Develop research skills based on exact and environmental science databases. |

| Contribution on student load (must correspond with learning outcomes) | | | |
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| **Activity** | **Hours** | **Days/week** | **Total** |
| Lectures | 2 | 15 | 30 |
| Exercise theoretical/laboratory | 2 | 15 | 30 |
| Practice work | 1 | 3 | 3 |
| Contact with lecturer/consultations | 1 | 15 | 15 |
| Field exercises | 1 | 3 | 3 |
| Mid-terms, seminars | 2 | 2 | 4 |
| Homework | 1 | 13 | 13 |
| Individual time spent studying (at the library or home) | 2 | 15 | 30 |
| Final preparation for the exam | 2 | 8 | 16 |
| Time spent in evaluation (tests, quiz, final exam) | 2 | 2 | 4 |
| Projects, presentations, etc. | 2 | 1 | 2 |
| **Total** | | | **150 hours (6 ECTS)** |

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| **Teaching methods:** | Lectures, exercises, discussions, consultations, course projects, homework, midterm exam (colloquium), exams |
| **Evaluation methods:** | ▪ Regular and active attendance: 10%,<br>▪ Midterm exam (colloquium): 20%,<br>▪ Course project: 10%,<br>▪ Final exam: 60%. |
| **Literature** | |
| **Basic Literature:** | M. Schneider, J. Gersting, Invitation to Computer Science, 8th edition, Cengage, 2019.<br>Invitation to Computer Science Lab Manual, 5th edition, Course Technology, 2010. |
| **Additional Literature:** | J. G. Brookshear, Computer Science, an Overview, 11th edition, Addison Wesley, 2012.<br>ICS lab manual, 2010. |

| Designed study plan: | | |
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| **Week** | **Lectures** | **Exercises** |
| *First week:* | Presentation of the syllabus<br>Introduction<br>Definition of computer science<br>Algorithms<br>A brief history of computing | Lab 1<br>Computer hardware<br>Input / output devices |
| *Second week:* | Algorithmic basics of computer science<br>Algorithm layout<br>Examples of algorithmic problem solving<br>The efficiency of the algorithms | Lab 2<br>Formatting the hard disk<br>Installing antivirus software<br>Service programs |
| *Third week:* | Algorithm attributes<br>Measuring efficiency<br>Algorithm analysis | Lab 3<br>Computer network connection<br>Common folders |
| *Fourth week:* | Building blocks<br>Binary number system<br>Bulk logic and gates<br>Construction of computer circuits | Lab 4<br>MS Word: Index, Table of Contents, Mail merge |
| *Fifth week:* | Organization of computer systems<br>Computer system components<br>Von Neumann's architecture<br>Other architectures | Lab 5<br>MS Excel: Formulas, SUM, Percentage, IF, Nested IF, AND, OR |
| *Sixth week:* | Introduction to system software and virtual machines<br>Assemblers and assembly language<br>Operating systems | Lab 6<br>MS Access: Tables, Primary Keys, Forms, Form Binding |
| *Seventh week:* | Midterm test | Repetition of exercises<br>Reinforcement for the midterm test |
| *Eighth week:* | Computer Networks, Internet and the<br>World Wide Web<br>Basic concepts of networks | Lab 7<br>Compiler C Setup, path definition, opening, compilation |

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| | Communication protocols<br>Network services and benefits | |
| *Ninth week:* | Information security<br>Threats and defenses<br>Coding<br>Introduction to high-level programming languages<br>The advancement of languages<br>Language family | Lab 8<br>Error detection / correction, clrscr, getch |
| *Tenth week:* | The Tower of Babel<br>Procedural languages<br>Special purpose languages | Lab 9<br>Data types |
| *Eleventh week:* | Compilers and language translation<br>The compilation process | Lab 10<br>Variables, variable names, and related errors |
| *Twelfth week:* | Computing models<br>Computing Agent Model<br>Modelling an algorithm<br>Examples of the Turing machine<br>Problems without solutions | Lab 11<br>Variables, variable names, and related errors<br>Declaration, initialization |
| *Thirteenth week:* | Simulation and modelling<br>Computer model<br>E-commerce and databases | Lab 12<br>Variables, variable names, and related errors<br>Receiving user input values |
| *Fourteenth week:* | Artificial intelligence<br>Division of tasks<br>Representation of knowledge<br>Duties of acquaintance<br>Robotics | Lab 13<br>Variables, variable names, and related errors<br>Implementation of simple mathematical equations and formulas |
| *Fifteenth week:* | Final Test | Repetition of exercises<br>Reinforcement for the final test |
| **Academic policies and rules of conduct:** | | |

- Students should be aware of and respect the institution and Code of ethics.
- Students should respect the schedule of lectures, and exercises and be attentive.
- It is mandatory to possess and presents a student ID card in the mid-terms and exam,
- During the compilation of course projects, students must adhere to the instructions given by the professor.
- During the exam is forbidden the use of mobile phones.